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Pig Iron Production in 1895.

The production of pig iron in the United States in 1895 promises to be the largest in the history of the country. The American Manufacturer has compiled from its monthly reports a statement showing a probable output during the year of 9,387,639 gross tons. The heaviest production in any previous year was in 1890, when the total was 9,202,703 tons. The yearly production of the United States since 1885, using the American Manufacturer's estimate for 1895, has been as follows:

Year.	Production, Gross tons.
1885	4,044,526
1886	5,683,329
1887	6,417,148
1888	6,489,738
1889	7,603,642
1890	9,202,703
1891	8,279,820
1892	9,157,000
1893	7,124,502
1894	6,657,388
1895 (one month estimated)	9,387,639

Increasing Coal and Coke Output in West Virginia.

The sale of 500,000 tons of Pocahontas coke to the Illinois Steel Co., reported in the Manufacturers' Record last week, is a striking illustration of the rapid extension of the coal-mining interests of West Virginia. In the elaborate paper, entitled "The Coal-fields of West Virginia," prepared a few months ago by Major Jed Hotchkiss, of Staunton, for the Manufacturers' Record, the growth of coal mining in that State and the prospects for the future were clearly set forth. The total coal and coke production of West Virginia, as given by Major Hotchkiss, showed an increase from 3,142,000 tons in 1883 to 10,928,000 tons in 1893. Probably the most remarkable development in the State has been that of the Flat Top and New River coal sections. The Flat Top coalfield was reached by the Norfolk & Western Railroad in 1882, and in the following year 60,828 tons of coal and 19,805 tons of coke were shipped from that district. In 1894 the shipments from that same field were 3,143,342 tons of coal and 744,716 tons of coke, a marvelous

showing for twelve years of growth. The Central or New River field, tributary to the Chesapeake & Ohio Railroad, has an output of about 1,500,000 tons a year. Commenting on these figures, Major Hotchkiss said:

Adding this to that of the Flat Top field, we find that the output of coal from the entire Lower Coal Measures field in West Virginia is at this time about 5,000,000 tons a year, a remarkable result for the short period during which this field has been accessible by the Chesapeake & Ohio and the Norfolk & Western Railroads. A like rate of progress and development will in a few years more make this one of the largest soft-coal-producing areas in the United States, a result that will be expedited by the extension of the West Virginia & Pittsburgh southward into the Gauley field, and by that of the Huntington & Guyandotte southeasterly into the portion of the Flat Top field on the head of the Guyandotte river, each of which parts of this field could very soon be made as productive as are the portions that are now crossed by the Chesapeake & Ohio and the Norfolk & Western. I confidently predict that by the beginning of the next century, now but five years away, the output from the Lower Coal Measures of West Virginia will be from 15,000,000 to 20,000,000 tons of coal a year, including the coal made into coke.

This prediction of Major Hotchkiss, who has probably given more careful study to the coal resources of West Virginia than any other man living, gives an indication of the great activity in railroad construction and mining operations which must go on during the next five years to make good his prediction. The purchase of 500,000 tons of coke by the Illinois Steel Co. for delivery during 1896 is one illustration of how rapidly events are already crystallizing to make the fulfillment of Major Hotchkiss's prediction a reality. As late as 1889 the whole State of West Virginia produced only 360,000 tons of coke, and in 1893 the product for the entire State was 1,090,000 tons; whereas for 1896 one company alone will receive from that State 500,000 tons, or half as much as the entire output of the State in 1893.

A Triumph of Southern Workmanship.

The success of the Texas as a battleship has now been demonstrated beyond a doubt. After months of waiting and a series of vexatious accidents, most of them of a trivial character, and many of which could have been avoided, the first battleship built at a Southern plant, by Southern workmen, and using mechanical power furnished entirely by a Southern company, has had an opportunity to demonstrate her powers. For several weeks she has been stationed in New York harbor, and has made a number of trials at sea. During the last trial she was run for three hours at a speed ranging from seventeen and three-tenths knots per hour to eighteen and eight-tenths, the average being seventeen and eighty-two hundredths for the three hours. In order to secure the premium of \$100 a horse-power, the engines of the Texas were obliged to develop over 8600. The test shows, according to the official report, that 9000 was developed at cer-

tain periods of the trial, which would give the Richmond Locomotive and Machine Works, the builders, a premium of about \$40,000.

The government requires four hours' continuous service before accepting the vessel, and another trial will be made, for the reason that the pipes which are used to drain water from the crank pits of the shafts, being too small to carry off the water, it flooded the engine-room. This defect has nothing whatever to do with the character of the machinery itself. It can be easily remedied.

As soon as the Texas was placed in the water, several Northern papers began to criticize the vessel, publishing rumors relative to her machinery and its construction, and in these criticisms reference to the Portsmouth navy-yard and the Richmond Locomotive Works was not wanting. The Manufacturers' Record has believed from the first that the Texas would demonstrate the ability of Southern workmen to turn out as good a boat as could be built anywhere in this country. It is very gratifying to learn of the unusual success which has attended the last trial, the statement being officially made that the Texas is the fastest ship of her class in the world. This is, indeed, a record to be proud of, and the Manufacturers' Record congratulates not only those who built the vessel, but the Richmond Locomotive Works, which has shown that it can turn out mechanical power for marine service of such a high standard.

Elsewhere the Manufacturers' Record publishes an illustrated description of the ship.

It is appropriate that the announcement of the success of the Norfolk-built Texas should be followed by the report of the board of naval bureau chiefs, recommending to Secretary Herbert the acceptance of bids of the Newport News Dry Dock & Shipbuilding Co. for building both the battleships authorized by Congress. The bid of this company for the two boats was \$2,250,000 each, or about \$500,000 less on each boat than the bid of the Cramps. The Philadelphia papers have been greatly stirred up by the fact that their pet industry, the gigantic shipbuilding concern of the Cramps, has been underbid by about 20 per cent. by a Southern ship-yard. In every line of industry in which the South has entered into competition with other sections, it has been able to produce at a lower cost, and thus to forever set the pace for all others. This new field of labor, shipbuilding, the one in which the South might naturally have been expected not to take the lead at present, because it has not yet developed its own steel interests, proves to be no exception. The Texas, built at the Norfolk navy-yard, was turned out at a lower cost to the government than the sister ship built at the Brooklyn yard, and her test proves that she is the fastest ship of her class afloat. And now the Newport News Company contracts to build for the government two boats, to cost

\$4,500,000, or \$1,000,000 less than the offer of the great Philadelphia shipbuilding concern. The students of the world's business affairs, watching these remarkable events, cannot but be impressed with the strength of the South's industrial position.

Keep Up with the Times.

An old Latin proverb says "the times change and we must change with them." In that proverb is centred the history of business and trade from the earliest ages. The caravans that went down to Egypt to trade in the days of the patriarch Jacob, and the ships of King Hiram, of Tyre, that carried all sorts of merchandise to the Hebrews in King Solomon's time, were succeeded centuries afterwards by those famous merchant princes who converted the lagoons and marshes of Venice into the city of palaces and the seat of a commerce that extended to every part of what was then the world. And as it was in the past, so it is today, and so it will continue to be until the end of time. And as with nations, so with cities. They rise from small beginnings to greatness and opulence, partly because of their locations, partly because of the enterprise of their inhabitants. Of the two, the latter is the greater and more efficient cause, and so long as enterprise continues active, so long the city flourishes; but when it abates, progress ceases, population slowly decreases, and, finally, the once flourishing municipality is numbered among the "more dead than alive" towns of the country. The most common cause of this decadence of communities is that their people do not realize until too late the fact set forth in the old Latin proverb, and fail to meet the changed conditions of progressive civilization. Men that will persist in doing business stage-coach fashion when railroads are available will soon have no business to do. The only sure way to maintain existing prosperity, and to increase it, is to keep on the alert, to be quick to note every change and to conform to it. It is this faculty that has made New England the wealthiest and most prosperous section of the United States. Her people are always up-to-date, and are always looking ahead. It matters not to them that people elsewhere take from them this, that or the other kind of business which they once found profitable. They simply turn their capital and energies into new pursuits, and so continue to prosper. Other sections may do the same with equal success. That is what the South has been doing ever since the work of rehabilitation from the war began; but it may and must continue the good work.

A recent issue of the Times-Democrat had a leader entitled "New Orleans and the Texas Trade," which began as follows:

There was a time when New Orleans controlled the trade of Texas, but it has been largely crowded out of that State, and it is rapidly losing what little business it still enjoys there. It gets some Texas cotton, it is true, which goes through in transit; but

there is very little left of that general business which means so much to a city. It is not because there is no trade there, for commercially Texas is an empire. No State in the South is a larger buyer of every kind of goods, but it buys them elsewhere, not in New Orleans, as formerly, but in New York, Chicago and St. Louis—above all the latter city—which have made big inroads into our Texas trade.

The editorial, in a somewhat lugubrious strain, complains that while some lines of business do fairly well, and thus show what might be done by proper effort, yet "there seems to be a disposition to abandon all efforts in that direction." This, says the Times-Democrat, "is a mistake." Aside from its proximity to Texas, and its splendid port, New Orleans has now steamer lines to Europe, and it is far stronger commercially than it was a few years ago. The alleged cause of the trouble is that the railroads won't co-operate with the merchants, and so make their schedules that the New Orleans papers are virtually shut out of Texas, and so New Orleans is prevented from "getting that share of Texas trade which it has a legitimate right to claim."

With all respect for the able and wide-awake paper that says these things, the Manufacturers' Record thinks it has taken a wrong view of the situation. There is no city in the country that has "a legitimate right to claim" the trade of any section. Wherever there is business to be had, it is the "legitimate right" of everybody to seek it, and the best bidder gets it every time. This is the history of trade in all ages and all countries. Nor is it reasonable to charge that the railroads deliberately work against New Orleans in the interest of other localities. Railroad managers put forth their best efforts to make their roads earn money. That is their business and their duty. Let New Orleans convince them that by adopting certain changes they can largely increase their earnings, and the railroads will hasten to make them. There is no sentiment in the matter. It is simply a business problem.

Texas merchants are like those of other States. They buy where they can get their stocks to the best advantage to themselves. If New York, or Chicago, or St. Louis, can do better by them than New Orleans can, they will do their purchasing at that particular city. It is not sentiment, but business interest that governs their actions. Let the merchants of New Orleans prove to those of Texas that they can make more profit by buying in the Crescent City than in any other, and it will get not simply a share, but the great bulk of their trade.

New Orleans is at the mouth of the great Mississippi, whose navigable waters give her cheap transportation to an immense territory. The varied products of that vast area already contribute to her commerce, but not by any means to the extent they might be made to do. In continuing to give their chief attention to commerce in cotton, her merchants make their mistake. It has been a very profitable business in the past, and it will be in the future. But it is but one item, one staple out of many, that New Orleans could handle commercially to great advantage. Times and conditions are changing. Texas is opening up seaports in connection with her railroad systems. From these ports the bulk of her cotton will be shipped. To them the returning vessels will carry much of the merchandise consumed by her people. It is natural, inevitable, that this should be. But from the fertile fields, the great forests, the vast mines, the industrial cities and towns that lie along

the Mississippi and its important tributaries, New Orleans may draw materials for a diversified commerce greater in volume, in variety and in value than cotton ever gave her. And upon these raw materials, laid down more cheaply at her docks than at any points distant from water carriage, she can build up great manufacturing industries for the supply of domestic and foreign customers. The times change. New Orleans must change with them. In that lies her future.

THE TEXAS A SUCCESS.

A Southern-Built Battleship Which Is the Fastest of Her Class.

An Official Trial Proves the Vessel to Be One of the Best in the Navy—Complete Description of the New Man-of-War.

The last sea trial of the engines of the battleship Texas has demonstrated beyond a doubt that her mechanical power is fully up to the government requirements, and that her engine builders, the Richmond Locomotive and Machine Works, will obtain a premium above the contract price. According to the report of engineers who were on board, the vessel was speeded for three hours at a record of from seventeen and three-tenths knots to eighteen and eight-tenths knots per hour, the average being seventeen and eighty-two hundredths knots, or nearly one knot more than the speed called for by the government. The horsepower to be developed was 8000, but it is stated that about 9000 was obtained, which would make the premium about \$40,000.

The government requires a continuous run of four hours before a ship can be accepted; consequently, another trial must be made. It would have been completed this time had not water flooded a portion of the engine-room. This was due entirely to small drainage pipes, and in no way affects the engines or the ship proper. The pipes will be replaced before the next trial.

The Texas, which is rated by the recent trial as the fastest battleship of her class in the world, was constructed at the Portsmouth navy-yard, the Richmond Locomotive and Machine Works securing the contract for her machinery. Consequently, she is a product of Southern skill and workmanship, and shows what the South can accomplish in the construction of warships. An illustration and description of the great warship is herewith given.

THE MECHANICAL POWER.

Elaborate Steam and Hydraulic Engines Built by Southern Workers.

The Texas, which is the first battleship to be constructed for the United States Navy, ranks in the second class of the armored type. The plans for this vessel were prepared in England, and therefore its arrangement differs somewhat from the warships since designed in this country. The actual displacement of the vessel is calculated to be 6314 tons, and her cost about \$2,500,000. Work was begun August 3, 1886, at the Portsmouth navy-yard, at the same time that work was begun on the Maine at the Brooklyn navy-yard. In one of his annual reports the Secretary of the Navy unconsciously has found the basis for a high compliment to the Southern yard by saying that at the time of his report about one-fourth of the work necessary to complete the Maine had been accomplished, while, owing to several extraordinary causes which could not be avoided, only a portion of the keel of the Texas had been laid. In spite of this fact, the Texas has practically gone into commission, while several

months will probably be required before the Maine will be able to hoist the naval ensign. This fact speaks volumes for the energy and ability displayed by those in charge of the Portsmouth yard.

The essential feature of this great warship is, of course, her machinery and armament. The machinery is entirely a Southern production. It was built in Southern shops, by Southern workmen, after the working plans of Southern designers, and, although the first which has ever been put together south of the Potomac river, for one of the vessels of the navy of today, up to the present time it is giving the highest satisfaction. In fact, the quality of the metal in the engines and auxiliary apparatus, the promptness with which they were constructed, in spite of a fire which seriously injured the plant in which they were built, and the careful workmanship displayed in the most minute parts, have surprised the United States board of steam engineering, which has closely followed the work from its inception. The Richmond Locomotive and Machine Works, which was awarded the contract, had as competitors the L. P. Morris Co., of Philadelphia, which bid \$634,750; the Quintard Iron Works, of New York, sometimes known as N. F. Palmer, Jr., & Co., which bid \$682,500; the Southwark Foundry & Machine Co., of Philadelphia, which bid \$645,800, and Charles Reeder & Sons, of Baltimore. The Richmond figures were \$634,500, and upon this bid they secured the contract, which provided that the machinery was to be constructed and set up at the Richmond Works within two years and a-half from the date of contract, and was to be placed in the vessel ready for dock trial one year later.

As this was the first marine engine work which the Richmond Company had ever undertaken for the government it was necessary to have special patterns, molds and a large amount of extra machinery and other fixtures which required great accuracy in design, for the reason that by the terms of the contract, in case any errors were made in design or construction of the apparatus or in the parts, the constructing company would be the loser. While the latter assumed a great risk in taking up a contract which by even a slight error in following specifications might mean the loss of several hundred thousand dollars to them, the determination of the management to show the government and the world at large what their plant could do caused them to enter upon the undertaking with no hesitation, and the result, as indicated, has been eminently successful beyond all expectations.

The Texas has a propelling power which consists of two sets of engines, or six individual engines. They are what is known as the vertical, inverted-cylinder type of direct-acting triple-expansion. The cylinders are respectively 36-inch high pressure, 51-inch intermediate and 78-inch low pressure, with 39-inch piston stroke. From them a collective horse-power can be produced of 8000, with the main engine operating at 123 revolutions per minute. The propellers of the ship are of the twin-screw type, each having four blades of manganese bronze, each propeller being fourteen feet six inches in diameter. The boilers are four in number, of the double-ended steel type, with return fire tubes. They are fourteen feet outside diameter and eighteen feet long, and calculated to stand a working pressure of 150 pounds to the square inch. They are placed in four water-tight compartments, with two firerooms in each compartment, the total heating surface being 16,913 square feet and the grate surface 532 square feet.

The shafting, which is one of the most vital points in the operation of the vessel, consists of the following: The line shafts connected with the engines are thirteen and a-half inches in diameter and nineteen feet eight inches over all. The propeller shafts, which operate the screws, are respectively fourteen and three-eighths and fourteen inches in diameter, and twenty-five feet three inches and thirty feet four and a-half inches over all.

To give an idea of the extent of the auxiliary power it may be said that each propelling engine has two single-acting vertical air pumps worked by a two-cylinder compound engine to each set of pumps. A centrifugal pump is also attached to each condenser driven by a single-cylinder engine, one pump being provided for each of the propelling engines. Each engine-room is also provided with a vertical duplex fire pump capable of throwing 300 gallons per minute, also an auxiliary pump of 150 gallons per minute capacity. To provide air an exhaust fan is provided for each fire-room having a diameter of four feet and six inches, while the firerooms also have blowers driven by vertical engines, one to each apartment. Each boiler-room is provided with one main and one auxiliary feed pump, making eight in all. These pumps, as well as those referred to above in the engine-rooms, were designed by the builders. The number of main and auxiliary engines put aboard by the builders are forty-four.

The question of operating the turrets of the Texas has been a question of much discussion with engineers, as these great masses of metal, thirteen inches in thickness, are subject to the heaviest fire in action, and must be worked by the best combination of steam or other power in order that they may be revolved quickly and accurately in spite of their enormous weight. As will be seen by the illustration, they are located about midships on the deck and extend several feet below it. They are calculated, with the present operating plant, to revolve entirely around in one minute. The principal power is hydraulic, and each has a special pumping plant. These plants have a capacity of 2400 gallons per minute for their pumps, and are also used for working the 13-inch guns, one of which each turret contains. In this connection it may be added that the hydraulic turret turning gear was also designed by the builders. The engines used are what is known as the three-cylinder hydraulic, one to each of the turrets. They were built, as may be imagined, by plans specially designed for operating this feature of the battleship's armament.

As the reader may imagine from the above brief outline, the engines are so many in number and so arranged that in case any portion of the vessel is disabled during an engagement the guns can be worked and the propelling, steering and other apparatus also handled with ease. The idea of the designers has been to have them so separated and protected that only in an extraordinary case could two engines operating the same apparatus be injured at one time. For instance, in case a shot should strike one of the turrets in such a way as to interfere with its revolution, which is considered by naval experts as next to impossible, there is scarcely a probability that the other could be injured in the same manner, so that the ship would have the use of at least one of its largest guns during the entire battle. In case one or two of the propelling engines is disabled or is injured in any way, it has the others, which will develop several thousand horse-power and be competent to maintain a high rate of speed and give it

plenty of steerageway. In addition to the manner in which the engines are located in separate parts of the vessel, the armor-plate and other protection is so arranged that the heaviest portions are about the machinery, while curves and angles and every safeguard which the skill and science of naval architects could devise have been combined in the construction of the Texas in order to glance off and otherwise render harmless shot from an enemy's vessel. The coal is also used as a protection, the bunkers being arranged so that they will form an additional rampart to the different parts of the machinery.

The weight of the machinery is about 1,800,000 pounds. It includes twenty-five miles of piping and 750 valves.

Only a faint outline can be given of the really vast amount of work which has been required to place this machinery plant in the Texas. The specifications for this machinery plant of the Texas, which required a book of over 100 closely-printed pages, involved an im-

fications to the satisfaction of the government than the Richmond Locomotive and Machine Works. "I took pleasure," said he, "in giving a certificate at the time the engines were completed as to the satisfactory manner in which they had been built. The company has been willing to meet the government engineers and to make changes wherever the latter requested them. It has evidently tried to fulfill every obligation, and there has been no clashing or dispute whatever since this work has been undertaken at Richmond. Although the Richmond Locomotive and Machine Works was required by the magnitude of the contract to secure a great deal of special machinery and to prepare special patterns, etc., it did not hesitate to do so, although it assumed a great risk. Its experts have visited the bureau of steam engineering just as often as it was necessary to obtain our ideas relative to the smallest points, and from the first, as I have indicated, the company has been in entire harmony with us. For these reasons I

inches thick throughout, and is curved to such a degree that it is calculated to glance or deflect shots from an opposing vessel so as to neutralize their effect.

The lower parts of the turrets and the machinery for working the guns are enclosed in armored redoubts twelve inches thick, backed by six inches of wood. The turrets are plated with 12-inch steel armor. There is an armored conning tower twelve inches thick placed forward on a level with the bridge, with an armored tube leading from it three inches thick.

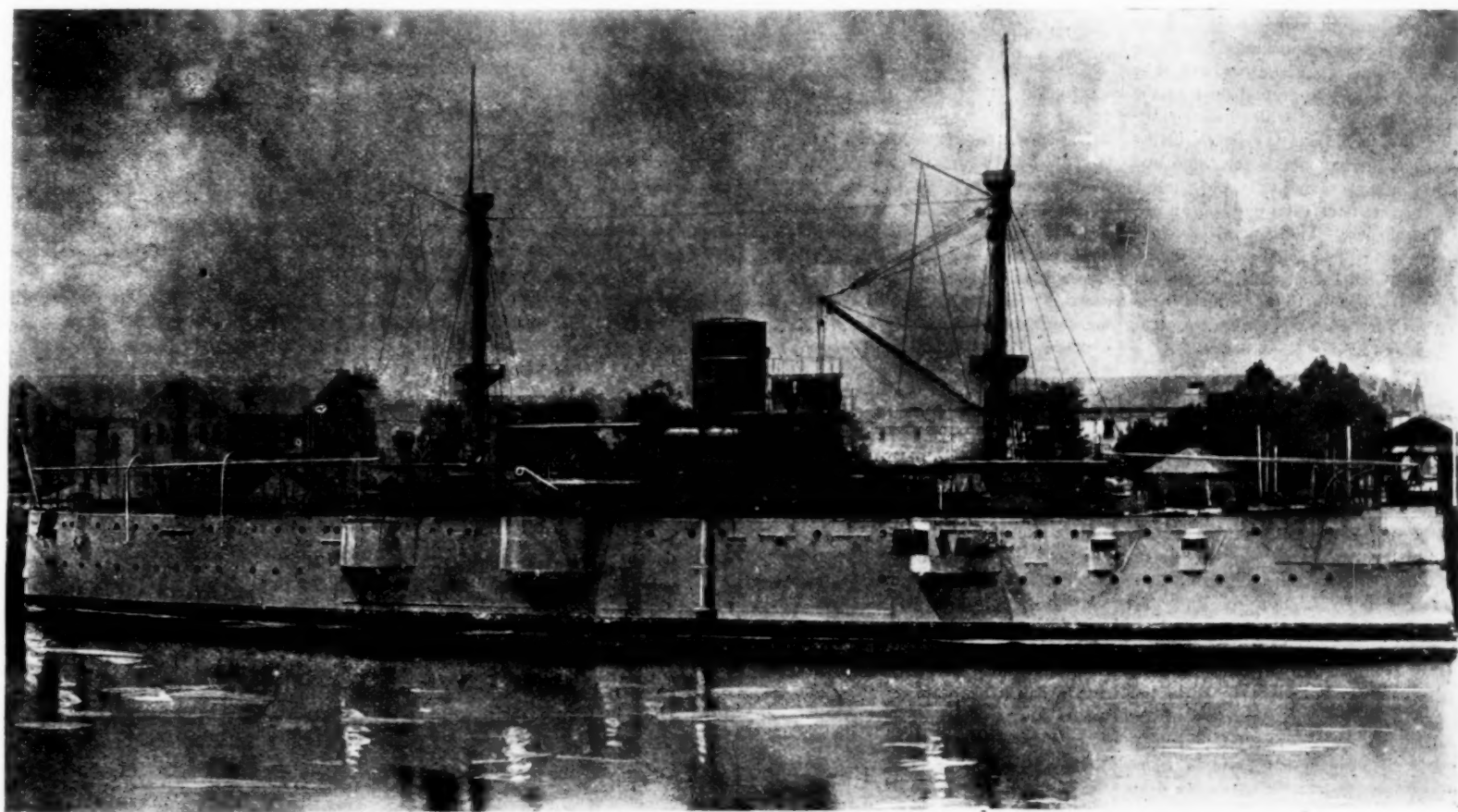
The main battery consists of two 12-inch guns in turrets, and six six-inch guns protected by shields. The 12-inch guns are mounted in turrets placed on echelon to give each a fore and aft fire. Each has a complete broadside fire on one side, and can command a range in practically any direction. A six-inch breech-loading rifle gun is placed forward and one aft on the same level as the 12-inch guns. The remaining four six-inch guns are mounted in sponsons

that if all the upper works of the vessel except her conning tower and turrets were shot away, she could still be moved at pleasure and her 12-inch guns fought. As these are more formidable than the rest of her battery combined, her great fighting power can be faintly estimated. All her armor and guns were fitted and placed in position at Portsmouth navy-yard by Southern mechanics and engineers. The ship is calculated to carry a crew of 300 men and officers, and will have a coal-carrying capacity of 850 tons. As she can steam at the rate of eleven and four-fifths knots an hour for 6000 knots with a supply of 500 tons, it will be seen that ample provision has been made for fuel for a long cruise.

D. ALLEN WILLEY.

Good Trade Prospects.

The W. B. Belknap Co., extensive hardware dealers, Louisville, Ky., says: "The general trade prospects in our section are extremely good, the agricultural yield of the past year having been satis-



THE BATTLESHIP TEXAS.

mense amount of detail which cannot be described in this article—such as the steam-heating apparatus, the distilling apparatus for supplying water, which alone has a capacity to furnish 5000 gallons of water every twenty-four hours, and the mechanism for furnishing oil to the different working parts. In order to furnish an adequate supply of lubricating oil alone it was necessary to build tanks to contain in all 10000 gallons.

VERY MUCH GRATIFIED.

Praise of the Work from the Government Representatives.

The satisfaction of the government in the completion of this great contract by the Richmond Locomotive and Machine Works is, perhaps, best indicated in an interview which a representative of the Manufacturers' Record had with Commodore Geo. W. Melville, chief of the United States bureau of steam engineering, which had direct supervision of this work. Mr. Melville stated that no contractors had ever displayed more willingness to carry out every detail of the spec-

feel very much gratified at the success of its efforts as thus far developed. I feel safe in saying that this corporation has endeavored to give us the very best material, best workmanship, and to execute its contract as promptly as lay within its power."

HER ARMOR AND GUNS.

General Dimensions and Batteries of the Texas.

The general dimensions of the Texas are as follows:

Length of water-line, 290 feet; beam, sixty-four feet one inch; mean draught, twenty-two feet six inches; depth to upper deck, thirty-nine feet eight inches. There are two military masts for operating small guns, but no sail. The expected speed is seventeen knots per hour. The armor belt, which is of steel twelve inches thick, with six inches of wood backing, protects the magazines and machinery. It extends two feet above and four feet six inches below the water-line. The protective deck, which is worked over the armor belt, is three

on the main deck. On the main deck the secondary battery consists of four six-pounders, four three-pounders and four revolving cannons, protected by one-and-a-half-inch steel plating. Two Gatlings and two revolving cannons are placed on the bridge deck and two one-pounders are placed on the flying bridge. Two Gatlings with two revolving cannons are in the military mast tops. Two rapid-fire guns are fitted in the steam cutters. The magazines for the main battery are placed in the centre of the vessel below the protective deck. The ammunition for the secondary battery is stowed in magazines placed forward and aft, the ammunition being passed up to the main deck through an armored tube three inches thick. There are six torpedo tubes, one in the bow, one in the stern, two below water through the side forward and two above water through the side aft, fitted for Whitehead torpedoes, to be discharged by compressed air.

The design of the naval architect was to specially protect the machinery and the turret guns, and experts assert that this has been so successfully carried out

factory, and while prices ruling were extremely low, except in the case of cotton, the aggregate volume was large enough in most sections to make up for the discouragement on the score of prices. Railroad earnings continue to improve, and there only needs to be a re-establishment of confidence, which might, we believe, be had by following out the President's financial plan, to make the country entirely prosperous. Capital is necessarily timid as long as there is uncertainty as to the intrinsic value of the circulating medium. Investors are not going to put out gold or money as good as gold unless they are certain that it will be paid in the same."

One of the enthusiastic cotton planters of the South is Mrs. Andrew Carnegie, wife of the millionaire iron and steel maker of Pennsylvania. Mrs. Carnegie owns a large estate on Cumberland Island, and has made a specialty of raising a fine quality of sea-island cotton. In fact, she has been so successful that at the Atlanta Exposition she took one of the premiums for the excellence of her exhibit.

RAILROAD NEWS.

[A complete record of all new railroad building in the South will be found in the Construction Department.]

\$2,000,000 for C. & O. Improvements in Richmond.

The Chesapeake & Ohio Railway Co. has presented the plans for its improvements at Richmond before the city council, and the indications are that they will be favorably considered. As already stated, these improvements will cost fully \$2,000,000, and include an elaborate railway station and terminals.

The depot and trainshed are to be constructed of brick, iron and stone, and the arrangements will, in many important features, be similar to those adopted by the Pennsylvania Railroad and the Philadelphia & Reading Railroad in their magnificent stations in Philadelphia. The floor of the main offices and the tracks and trainshed will be between twenty-five and thirty feet above the level of Main street. Underneath the main part of the building will be baggage facilities with a large, open concourse for carriages and vehicles. Elevators will take passengers from this ground floor to the waiting rooms above, while broad stairways will also connect the floors, giving the most abundant means for rapid and comfortable ingress and egress of passengers. On this floor there will be an elegant dining-room. The general offices of the company will be on the floors above, and it is intended to provide in them not only for the existing needs of the company, but for future requirements. The headquarters of the Chesapeake & Ohio Railway Co. are to be in this building, in fact as well as in name, it is understood. The iron in the enclosure covered by the trainshed will exceed 2,000,000 pounds in weight. The cost of these structures alone is estimated at \$200,000.

Owing to the many hills in and around the city, and the difficulty attending railroad construction, a viaduct will be required of extraordinary length. This structure will be built of iron and steel on stone piers along the entire main front of the city as far out in the James river as practicable. From the present Richmond & Danville depot eastward the line surveyed passes along the edge of the dock to Water street, touching no private property or residences or streets where retail business is transacted, on the overhead structure. This structure will cross Water street and continue along near to the York River Railroad track to the gasworks property of the city; thence to the line of the present tracks by crossing all the streets in Fulton suburb overhead, and passing on beyond the limits of the city. At Nineteenth street connection will be made to the depot on Main street.

The depot, trainshed and tracks will extend back over Franklin street nearly to the line of Grace; thence northward crossing Broad and Marshall overhead, and connecting with the present tracks beyond Clay street. By this arrangement passenger trains between Cincinnati and Newport News will come into the city as they do now, pass into this trainshed, and after discharging and receiving passengers will go directly over the viaduct through Fulton and on to Newport News. The trains from Newport News will in like manner arrive by way of this elevated structure, pass into the depot, thence north and westward by the present main line. Trains of the James River division coming from Lynchburg will stop at Nineteenth street and back into the passenger depot. Trains leaving for Lynchburg and the West via the James River division will back out of the passenger depot to Nine-

teenth street on the main viaduct, whence they will start westward. The estimated cost of this work is nearly \$2,000,000.

The length of the main viaduct, from Hollywood cemetery to Orleans street, will be about two and one-half miles, of which one mile will be in the river. The height of the structure opposite Haxall's Mills on the James river will be fifty-seven feet above the ordinary stage of the water, thirty-four and one-half feet above the surface of Dock street, twenty-eight feet above Main street and twenty-five above Franklin street. In addition to the two and one-half miles of structure on the main line, the elevated tracks from Nineteenth street back through the depot to a connection near Clay street will be eight-tenths of a mile, making a total elevated structure of three and one-third miles. The trestle from Thirteenth street eastward will be removed.

A part of the work required will be the lowering of what is known as the free bridge across the James river to allow the viaduct to pass above it at a height of thirteen feet from the roadway.

The terms of the ordinance require that work shall begin within three months and that it shall be completed in four years.

Chicago to Atlanta.

The effort to have another route between Chicago and the South, which is being promoted by the Chicago freight bureau and the business men generally of that city, may become successful in the near future. The Manufacturers' Record has referred several times to the possibility of the Wabash system extending southward by a connection with the Chicago, Paducah & Memphis road and a combination between the latter and the Paducah, Tennessee & Alabama. This would give the Wabash an entrance into Memphis, Tenn. A Chicago dispatch states that another combination may be formed, however, which will extend to Chattanooga and Atlanta. This combination would include the Wabash, the Chicago, Paducah & Memphis, the Paducah, Tennessee & Alabama and the Nashville, Chattanooga & St. Louis. The latter enters the three cities named, also Atlanta, and it is reported has leased the Paducah, Tennessee & Alabama road. Such a combination would connect Chicago with the heart of the South. To complete it would require the construction of the Chicago, Paducah & Memphis to Paducah, Ky. This extension would be but a few miles in length.

South Carolina & Augusta.

The South Carolina & Augusta Railroad Co., which was chartered at the last session of the legislature of South Carolina, is attracting considerable attention at present from the fact that the company has been organized, and the indications are that the line may be built. At the time its charter was secured the Manufacturers' Record called attention to the fact that if built the road would doubtless be an extension of the Louisville & Nashville, as among the incorporators are Mr. August Belmont, chairman of the board of directors of the Louisville & Nashville; Mr. Milton H. Smith, the president, also Mr. J. D. Probst, one of the directors. Hitherto the Louisville & Nashville has been using the Parsons system, the South Carolina & Georgia, for handling its Charleston business, but there have been strong evidences for some time past that it desires its own line to Charleston, and intends making that city one of its principal terminal points. The South Carolina & Augusta, if built, would extend between the points named, meeting one of the leased lines of the Louisville & Nashville at Augusta.

B. & O. AND SOUTHERN.

The Latter May Use the Baltimore & Ohio for a New York Extension.

The statement recently made in the Manufacturers' Record that the Baltimore & Ohio might form a northern extension of the Southern Railway system in the near future has attracted considerable attention from the fact that Mr. Samuel Spencer, president of the Southern, has recently had a conference with Baltimore & Ohio officials. Over a year ago the Manufacturers' Record, in a lengthy article on the reorganization of the old Richmond & Danville property, showed how the Southern was practically "bottled up" at the Potomac river and had to pay trackage rights beyond that point. The prediction was then made that the Southern would eventually have its own route to New York by way of the Baltimore & Ohio and its connections.

Harriman & Northeastern.

A dispatch from Harriman, Tenn., announces that arrangements have been made by which the Harriman Coal & Iron Co. has been completely reorganized. The financial arrangements include an issue of \$300,000 in bonds, secured by a mortgage on the property of the company, while the capital stock is \$600,000. Under this plan it is announced that the company has a fund of \$50,000, which will be used for equipment and betterments when needed. The title of the new company is the Harriman & Northeastern, and Mr. I. K. Funk, of the Funk & Wagnalls Co., New York, is at its head. With the reorganization completed, the road will doubtless be in a much better position, while the city of Harriman will be correspondingly benefited.

Added to the Southern.

A dispatch from Macon, Ga., announces that the Macon & Northern road, extending from Athens to Macon, has been acquired by the Central of Georgia Railway Co. by giving the security-holders an amount of the bonds issued under the reorganization of the Central system. This practically adds another line, 107 miles in length, to the Southern system. The Macon & Northern extends from Athens to Macon and forms a northern extension of the Georgia Southern & Florida, which is already a part of the Southern system.

Compressed Air a Success.

The test of the compressed-air locomotives now being used by the New Orleans & Western Co. for hauling cotton and other freight in its yards at Port Chalmette is attracting much interest. Mr. A. W. Swanitz, chief engineer of the company, in a letter to the Manufacturers' Record, states that one of them will do the work of 250 men in carrying freight about the yards and that the danger from fire is reduced to a minimum. In fact, insurance risk has been taken on the terminal property at 50 per cent. of the rate usually obtained.

Seaboard Air Line Out of It.

Vice-President St. John, of the Seaboard Air Line, has notified the Southern States Freight Association that this system will be withdrawn from it. This action of the Seaboard may result in the establishment of rates more favorable to the development of Southern and Western trade.

New Line from Florida.

The Florida East Coast Line Company has decided to begin a steamship service between Palm Beach and Nassau, on the Bahama Islands. The Northumberland will make trips between these points dur-

ing the winter, enabling Florida tourists to visit this winter resort also.

Railroad Notes.

Mr. W. H. Beardsley succeeds S. W. Chrichlow as treasurer of the Florida East Coast Railway.

Mr. W. R. Fagan has been appointed traveling passenger agent of the Southern Pacific, with headquarters at Atlanta.

It is reported that the Middle Georgia & Atlantic has purchased the Milledgeville & Eatonton, which it has been operating under lease.

The bridge over West bay, built by the Galveston, La Porte & Houston, has been completed, and trains can now enter Galveston from Houston.

The Harrisburg Construction Co., which is building the electric lines in Hagerstown, is endeavoring to secure the street railway in Martinsburg, W. Va.

Secretary Joseph Renshaw, of the West Virginia Southern, advises the Manufacturers' Record that his company built seven miles of line in 1895. This makes the mileage in West Virginia sixty-two.

At the annual meeting of the Cincinnati, New Orleans & Texas Pacific (Queen & Crescent system) Mr. Samuel Felton was elected president, Alfred R. Telford secretary and treasurer, to succeed the late H. H. Tatum.

Merchants of Columbia, S. C., have determined to operate steamers on the Congaree river to the seaboard to carry freight. The boats will run from Granby, which is at the head of navigation. It is four miles from the city.

Vice-President Willis J. Best, of the Mobile & Mexican Gulf Steamship Co., advises the Manufacturers' Record that this company will give the same service to Baltimore, Mobile and other ports that was intended by the company which it succeeded.

The Knoxville, Cumberland Gap & Louisville Railway has passed into the hands of the new company. The following officers have been elected: Clarence Cary, president; N. N. Henderson, vice-president; Ethelbert Fairfax, treasurer; E. T. Rice, secretary.

The Florida Central & Peninsular has just published for distribution in the North a handsomely-illustrated map folder, printed in two colors. Full information is given about train and steamship service from the North and Northwest to Florida, and full schedules for travel in both directions in this State.

At the recent annual meeting of the Virginia Midland division of the Southern Railway A. B. Andrews was elected president, with the following board of directors: C. M. Blackford, J. W. Burke, J. W. Daniel, C. G. Holland, J. T. Lovell, W. H. Payne, Robert Porter, G. S. P. Triplett, of Virginia; T. F. Ryan, C. H. Coster, J. C. Maben, Samuel Spencer, J. M. McAnerney, G. W. Maslen, Samuel Thomas, of New York, and J. L. Morehead, of Charlotte, N. C.

Coal Output for 1895.

According to a report from Piedmont, W. Va., the total amount of coal for the year to date transported from the George's Creek and Cumberland coal-fields aggregates 3,210,450 tons, being an increase over the corresponding period of last year of over 260,000 tons. From the Elk Garden and Upper Potomac coal-fields there have been mined 922,516.04 tons, being an increase of 122,921.11 tons. From the West Virginia Central & Pittsburg Railway Co.'s fields there have been manufactured 101,619.10 tons of coke, being an increase over the corresponding period of last year of 42,317.07 tons of coke.

FINANCIAL NEWS.

New Corporations.

The business men of Salem, Va., and several farmers of this section have decided to start a bank here. The capital stock will be \$50,000.

J. S. Horsley, Thomas A. Davis and others have applied for a charter for the West Point State Bank to be located at West Point, Ga. It is to have \$50,000 capital.

A charter has been granted to the Likoma Building, Mercantile and Land Association, of Richmond. The capital stock of the concern is to be not less than \$50,000 nor more than \$25,000. The following officers have been elected for the present year: J. B. Johnson, of Manchester, president; A. S. West, vice-president; John E. Scott, secretary; H. L. Harris, treasurer.

The German-American Mutual Permanent Building Association of Baltimore has been incorporated by William Schwartz, John R. Gould, Alexander Y. Dolfeld, George R. Willis, John R. Smith, Gebhard Leimbach, John Mahr, of P. Frederick Faust and Nicholas M. Smith. The association has a capital stock of \$2,080,000, divided into 2,000 shares of par value of \$104 each.

New Securities.

The city of Sherman, Texas, will issue \$80,000 in bonds to pay for improvements and fund its floating debt. Mayor Edmonds may be addressed.

A. M. Thrasher or D. S. Way, of Sanford, Fla., may be addressed relative to the issue of \$45,000 in 6 per cent. bonds offered for sale by the city.

At a meeting of the stockholders of the Alva Hubbard Heating Co., of Baltimore, it was determined to increase the capital stock of the corporation to \$20,000 by the issue of 600 additional shares of stock at the par value of \$25 per share.

Interest and Dividends.

The Citizens' and Marine Bank of Newport News, Va., has added \$2000 to its surplus and declared a semi-annual dividend of 3 per cent.

The board of directors of the Petersburg Railroad Co. has declared a dividend of 3½ per cent. on the capital stock of the company, payable January 2, 1896.

Although the majority of dividends declared by Southern corporations are not announced until their January meetings, the following have been declared:

Richmond, Fredericksburg & Potomac Railroad Co., \$3.50 per share.

Merchants' and Miners' Transportation Co., of Baltimore, 4 per cent., semi-annual.

Citizens' Bank, Savannah, Ga., 83 per share.

Savannah Bank & Trust Co., 83 per share, semi-annual.

Germania Bank, Savannah, 83 per share, semi-annual.

Virginia Fire & Marine Insurance Co., Richmond, 4 per cent., semi-annual.

Petersburg Railroad Co., 3½ per cent.

Richmond & Petersburg Railroad Co., 3½ per cent.

Municipal Improvement Co., New Orleans, 5 per cent.

Gaslight Co. of New Orleans, \$4 per share.

Alva Hubbard Heating Co., of Baltimore, 10 per cent., semi-annual (January disbursement).

Fountain Hotel Co., Baltimore, 6 per cent., annual.

Alabama Home Building and Loan Association, 3 per cent., semi-annual.

Merchants' Bank, Florence, Ala., 5 per cent., semi-annual.

Norfolk & Washington Steamboat Co., 3 per cent.

Financial Notes.

The Ashley County Bank, at Hamburg, Ark., is to be reorganized, with \$15,000 capital.

The Provident Savings Bank of New Orleans will be reorganized. Arrange-

ments are being made to reduce the capital to \$100,000.

The Atlanta Trust & Banking Co. and the Fidelity Trust & Banking Co., of the same city, have been consolidated under the name of the former. W. A. Hemphill will be president, and J. C. Kirk and Samuel Young, vice-presidents.

An Opportunity for a Game Preserve.

There was a time, not very long ago, when a good deal of the current fiction of the day had to deal with romantic adventures among the wild beasts and almost unexplored regions of this continent. So rapidly have the conditions disappeared which made possible these thrilling events that to read of bear and deer and turkey hunting outside of artificial game preserves is now becoming occasion for surprised interest. It is the fact that almost solely in the islands of the South Atlantic and Gulf coasts are preserved practically unchanged the natural conditions of a century ago that has made these isolated fastnesses so attractive to the adventurous sportsman. As a consequence, clubs and wealthy gentlemen have some time since bought up everything available in the way of ocean and gulf islands between Wilmington and New Orleans. Nowhere else can the original game be so certainly and so inexpensively preserved as on these comparatively inaccessible spots, and the result has been the monopolization of all such desirable places by a favored or sagacious few. Under these circumstances it is a matter of some interest that the owner of so considerable and so well-appointed an island as St. Vincent's, on the Florida coast, six and a-half miles out from Apalachicola, is offering this property for sale. He explains this action by the statement that two other islands and holdings take so much of his time and attention that he must needs let St. Vincent's pass into other hands. Otherwise, he would not part with St. Vincent's, for it cannot be replaced; and, except the holdings he will retain, he knows of nothing like it on the Atlantic or Gulf coasts.

A Novel Trunk.

The inventive genius of a young Southern woman has found expression in the invention of a folding trunk, samples of which are on exhibit at the Atlanta Exposition. This trunk, or valise, for it is made in all sizes, from a small valise to that of a large traveling or packing trunk, is a novelty which must prove of very great value to the traveling public. It can be readily folded, thus occupying but little space, as in this shape it becomes almost perfectly flat. It is substantially made, and has many advantages that necessarily cannot be found in the ordinary style of valise or trunk. Travelers are often puzzled in knowing what to do about small or extra trunks to be carried on side trips. This trunk obviates all trouble on that score. It can be folded and put inside of a larger trunk, occupying but little room, and in a moment put into shape for use in taking shorter trips while leaving the heavier baggage at some central point; or it can be used as the only traveling trunk needed, being made in any size desired. It is manufactured by the Folding Trunk Case Co., No. 29 Rutledge avenue, Charleston.

Messrs. W. T. Parham & Sons, of Maryville, Tenn., have decided to erect a woolen mill at Knoxville, and will commence work on same as soon as a suitable site is selected.

If you wish to keep posted on the progress of the South, read the Manufacturers' Record. Price \$4.00 a year.

TEXTILES.

[A complete record of new textile enterprises in the South will be found in the Construction Department.]

Textile Trade Conference.

A dispatch from Chicago says: "George S. Bowen, president of the Textile Manufacturers' Association of the South and West, has issued a call for a conference in Chicago, Tuesday, January 14, to consider certain difficulties of the present trade situation, which are explained in the call, which says:

"Manufacturers are forced to contend with continuously declining markets. Imports of certain competitive foreign goods are largely increasing, and our own manufacturers are compelled to reduce their prices materially in order to compete with the low-priced productions of European and Asiatic countries, the commerce of which is realizing great advantage in our markets by reason of exchange in the silver-using countries, the great reduction in our tariff rates and the repeal of our reciprocity laws, and, as a result, we are brought face to face with new and untried conditions.

"Exports of all agricultural productions are now made at lower prices than ever before realized in the history of our country. The great bulk of our consumers are thus obliged to restrict their purchases to the lowest possible limit, so that low prices do not increase consumption. The textile manufacturers are immensely interested in the present situation, and some thoughtful expression of their recent practical experience must have great weight in directing wise and prudent legislation in the present emergency."

Convict Labor in a Cotton Mill.

Alabama has undertaken a novel experiment in cotton manufacturing, the outcome of which will be watched with some interest. The penitentiary board has decided to establish a 5000-spindle cotton mill to be operated by convicts, seven-eighths of whom will, according to a dispatch received by the Manufacturers' Record, be negroes. The building will be 100x200 feet, two stories high, and will be constructed by convict laborers out of brick made by them from clay on the convict farm, and the lumber used will be sawed from trees now standing on the farm and dressed by the convicts. The cotton will be raised by convicts on the penitentiary farm, and manufactured in the mill located immediately on the ground. This will be an unusual experiment in the employment of convict labor, as well as in the manufacture of cotton goods. Though the operatives will be mostly negroes, its success or value will hardly be a fair criterion by which to judge the possibilities of utilizing colored labor in cotton mills. What can or cannot be done with convict labor in an enterprise of this kind is hardly the measure of what can or cannot be done with free labor. Still the progress of this undertaking will command general attention.

Cotton Mill to Be Operated by Negroes

Two land companies of Anniston, Ala., have donated a site for the cotton mill to be erected in that city by the Afro-Alabama Cotton Mill Co., recently reported. The parties interested are all negroes, and the plant will be operated entirely by that race. Engineers have begun surveying the grounds for the purpose of making maps to be used by the architects, who are now drawing plans for a 10,000-spindle mill building. The erection of the structure will be begun in about six weeks. Mr. W. J. Stevens is

president of the company, and has selected Messrs. C. R. Makepeace & Co., of Providence, R. I., as architects.

Wants to Buy Cotton Yarn.

A Northern manufacturer of hosiery wants to buy in large quantities the product of some Southern mill making mixed yarns from 12 to 14. Will pay cash. Address "Cotton Yarn," care of Manufacturers' Record.

Textile Notes.

The Newton Cotton Mills, of Newton, N. C., has closed down for the holidays, during which it will add a 325 horsepower Corliss engine and a boiler.

Messrs. Lockwood, Greene & Co., of Boston, will prepare plans for the proposed enlargement of the Whitney Manufacturing Co.'s mill at Whitney, S. C.

The United Industrial Co., of Roanoke Rapids, N. C., is running its knitting factory full, employing about 150 hands, and has increased the capital by \$150,000, which has all been paid in.

The Cherry Cotton Mill, of Florence, Ala., made its largest day's shipment last week, being 20,000 pounds of fine No. 40 yarn. The shipment was to New York, Philadelphia and Providence.

Messrs. Greenlee and McElwell, of Athens, Tenn., have purchased the Rockford Cotton Mills at Rockford, Tenn., for \$31,500 and will operate the plant. The mill contains 7128 spindles and employs 120 operatives.

The directors of the Eagle & Phoenix Manufacturing Co., of Columbus, Ga., held a special meeting last week, and a semi-annual dividend of 3 per cent. was declared, payable by February next. The resignation of Secretary and Treasurer Charles B. Woodruff was accepted, with regret, and a unanimous vote of thanks for the most efficient service of the officer. Mr. Woodruff is succeeded by E. N. Clarence.

The Prosperity Cotton Mill Co., of Prosperity, S. C., which was incorporated five months ago, will erect a building, with boiler-room attached, 92x230 feet, to cost \$10,000, and bids will be received next month. Bids will also be received for equipment, consisting of spindles, two 150 horse-power boilers, one 250 horse-power engine and an 80-horse electric light plant, pumping engine, etc., estimated to cost \$55,000. A. H. Kohn, secretary.

The extensive plant owned by the Anniston Rolling Mills Co., of Anniston, Ala., which has been idle since completed a few years ago, has been leased, as announced in the last issue of the Manufacturers' Record, to a new company to be known as the Anniston Iron & Steel Co. This company, which has a capital stock of \$50,000, has leased the rolling mill for three years, with the option of purchasing. After some slight repairs and improvements have been made it is expected to start up the mill about the first of January, giving employment to about 200 mechanics. Should this company be as successful as the one which leased the Anniston Pipe Works, it would afford another demonstration of the opportunities for profitable manufacturing in the South. The large pipe plant erected some years ago, which went into operation just before the Baring failure, but which failed partly because of lack of working capital, was leased about two years ago to practical pipe manufacturers. The lease was for two years, with the privilege of purchasing at \$200,000. The capital invested by the lessees was \$80,000. On this capital the earnings have been sufficiently large to enable them to pay in full for the plant, which they have lately purchased.

COTTONSEED OIL.

This department is open for the full and free discussion of trade topics and practical questions, and contributions are invited from men who are identified with this industry. Items of news are always acceptable.

The Market for Cottonseed Products.

New York, December 24.

The latest fluctuation in cotton-oil values has not been in the direction which was generally expected, and a backward step must be chronicled. Nor is the event surprising, when the peculiar conditions which culminated in the retrograde movement are considered. The chaotic condition which now prevails in financial and commercial centres, together with the monetary inconvenience to which many of the smaller manufacturers have been subjected, consequent upon non-release of oil stocks, were doubtless the primary factors in developing current undesirable features. The easy figures which now obtain have not attracted the attention of purchasers to an extent commensurate with the substantial concession made by holders. At this writing trading is practically at a standstill, whether for home or foreign use. The unexpected turn in events has failed to influence the position of the heaviest oil stock holders, however, whether here or at primary sources, the confused conditions which obtain being considered of an ephemeral character, to be succeeded by a restoration to former quotations. English oil has dropped to 17s., a circumstance which explains the difficulty experienced in disposing of off-grade yellow for Southern Europe. Lard compounders view with complacency current happenings, as it is expected that even a briefly prolonged maintenance of present reduced oil values will redound to the disadvantage of lard, thus directly increasing the demand for the compound product. December options for lard rule at 5.45 cents, and May lard, Chicago, 5.40 cents. Compound lard is quoted at 4½ to 5 cents. The situation, summarized, consists in a temporarily languishing market, due primarily to artificial, rather than natural causes, the permanent adjustment of values on a higher basis being warranted by the limited oil production and the comparatively depleted stocks in local and domestic consuming establishments generally, as well as in those of foreign purchasers. Sales reported for the week aggregate 750 barrels summer yellow at 28 to 28½ cents, 300 barrels prime crude at 24½ cents, and a small lot of crude at 23 cents. Sales of Mississippi valley oil to the extent of eight tanks have been effected on a 20½-cent basis. Prices current are as follows: Prime crude loose at the mills, 19 to 21 cents; prime crude, 24 to 25 cents; off crude, 22 to 23 cents; prime summer yellow, 28 to 28½ cents; off-grade yellow, 27 to 27½ cents; butter oil, 30 to 31 cents; white oil, 31 to 32 cents, and soap stock, ¾c. per pound. Receipts are accumulating. Exports aggregate 2650 barrels, the greater portion being consigned to France, Holland, Italy and England being practically out of the market.

Cake and Meal.—There is no difficulty experienced in disposing of these products as rapidly as produced. Private advice just received from England announces: "Spot prices are considerably below present cost of import, owing to importers (Liverpool) taking a profit on their early cheap purchases. American cake and meal are scarce, parcels arriving being promptly disposed of. An advance of the spot market is expected." New Orleans quotes cake \$19 per ton. Exports from that city amount to 2000 tons cake and meal, chiefly for Hamburg

and Liverpool. Receipts of meal for local and New England markets reach 150 tons.

Cottonseed-Oil Notes.

The Williamston Oil Mill, of Williamston, S. C., is being run day and night, and thousands of bushels are being daily received.

The market in New Orleans on the 20th inst. for cottonseed products was quiet and unchanged. Crude, bulk, 21 cents; yellow, 25½ to 26½ cents in barrels; meal, \$18.50 to \$18.75; cake, \$18.50 to \$18.75 per long ton for immediate delivery.

The North Carolina Oil Mills Co., at Charlotte, N. C., has just completed a tank at a cost of \$1500. The mills are now equipped with their own fire department, having hose, sprays, pipes, etc., throughout the buildings and an abundant supply of water at hand.

It is stated that there is in contemplation the erection of a cottonseed-oil mill at Heidelberg, Miss., a town four miles south of Vicksburg. A meeting of the citizens was held and a committee was appointed to solicit subscriptions to the stock, which is placed at \$10,000, in shares of \$10 each.

The Houston market for cottonseed products has ruled quiet, with a limited demand. Cake, meal, soap stocks and linters are not materially changed. Three-fourths of the mills of the State have now closed down for the season, and in other portions of the South the season is about closed in certain sections. Under these conditions the market is likely to advance in the near future. The following quotations were posted on the 20th by the cottonseed product department of the Houston Cotton Exchange and Board of Trade: Choice crude oil for butter oil and strictly prime crude oil, 20½ cents; prime crude, 20 cents; prime butter oil in barrels, 28 to 29 cents; prime summer yellow oil, 22½ to 23 cents; prime cottonseed cake and meal, \$12.50 to \$14 per short ton f. o. b. mill at interior points according to location; linters, A, Houston delivery and classification, 4¼ cents per pound; soap stocks, foots, prime refined oil per pound, 50 bid, 60 asked.

The people of the South owe a debt of gratitude to Mr. R. H. Edmonds, editor of the Manufacturers' Record, that it would be difficult for them to pay. A monument to his memory, after he has gone, would be entirely unnecessary, because every cotton mill built in recent years and every great industrial enterprise started in the South is a monument in itself to his untiring energy and peculiar genius for arraying facts favorable to the Southern section. It is no detraction from others to state that the indomitable determination of the man to present that country to the world in its true light, through the publications of his wonderful paper, has led all the other agencies in results. Week after week, month after month, year after year he has been instant in season and out of season, through sunshine and clouds, in picturing what he believed must be the inevitable future of the South. Oftentimes criticised by those whose interests were purely local, or whose motives were purely selfish, he has disregarded everything but what his better judgment told him was for the general good of a section, until he has compelled acknowledgment of the wisdom of his course. We do not know whether his advocacy of Southern interests has brought him wealth or not, but if he has prospered in keeping with his deserts, the Southern people should wish him wealth beyond the dreams of avarice and a feeling of satisfaction in proportion.—Harrisonburg (Va.) Free Press.

PHOSPHATES.

Phosphate Markets.

Office Manufacturers' Record,

Baltimore, Md., December 26.

As usual at the close of the year, the local market shows few symptoms of activity, and during the week trade in phosphate has been dull. A number of charters have been made during December, and manufacturers are purchasing more freely, especially from out of town. The business at points of production shows no material change, and the conditions are similar to those reported a week ago. In South Carolina miners are busy, and the market at Charleston is very steady, with a fair coastwise and foreign demand. Crude phosphate rock is still quoted at \$3, hot-air-dried \$3.25 and ground rock \$5, f. o. b. Florida miners are in better shape in the pebble district, and some of the larger plants are making large monthly shipments. Land-rock miners are still curtailing their output, and at present prices they see no encouragement to expand the volume of business. Prices are nominally steady at 8 to 8½ cents a unit for land pebble delivered at Eastern ports. Land rock is still quoted at 6¼d. and pebble at 5¼d. for foreign ports. The advices from Tennessee phosphate mines are favorable, and the output is being pushed with vigor. The offerings in this market are light, and prices are nominally steady at 9½ to 10 cents a unit for high-grade rock, with quotations f. o. b. Centerville \$3 to \$3.25 a ton. The Tennessee product is reported well sold ahead for near future delivery. The local receipts during the week amount to 900 tons of phosphate by schooner Josephine from Ashley river, S. C. In New York sail tonnage has been quiet during the week, and steamer freights are also dull, with a light offering of tonnage and previous rates well maintained. The only phosphate charters reported are a schooner, 496 tons, from Ashley river to Baltimore at \$1.85, and a bark, 720 tons, from Charlotte Harbor to Baltimore at \$2.10.

Fertilizer Ingredients.

The market for ammoniates has ruled quiet, as usual at this period of the season, and there is no movement of any moment to chronicle. The offerings are light, and stocks in the West are moderate, with sales of blood at \$1.50 f. o. b. Chicago. There are some sales recorded during the week to Southern buyers, but the demand at the moment is light. Nitrate of soda is steady.

The following table represents the prices current at this date:

Sulphate of ammonia, gas.....	\$2 50c	—
Sulphate of ammonia, bone.....	2 50c	—
Nitrate of soda.....	1 80c	1 85
Hoof meal.....	1 80c	—
Blood.....	1 85c	1 90
Azotine (beef).....	1 80c	—
Azotine (pork).....	1 85c	—
Tankage (concentrated).....	1 80c	—
Tankage (9 and 20).....	1 50 and 10	—
Tankage (7 and 30).....	17 00c	17 50
Fish (dry).....	20 50c	—
Fish (acid).....	15 00c	—

Phosphate and Fertilizer Notes.

The British steamship Hesperides cleared last week from Savannah with 1550 tons of phosphate rock for Genoa, valued at \$15,500, with other cargo.

The schooner Star of the Sea, chartered in Baltimore, arrived at Fernandina, Fla., on the 18th inst., and will take a cargo of phosphate rock to New York.

An amendment to the charter of the Roanoke Coal & Fertilizer Co., of Roanoke, Va., was granted last week. The capital stock was amended to \$20,000, and the name changed to the Farmers' Supply Co.

It is reported that a meeting of the hard-rock phosphate miners of Florida was held last week at the Camp mines, near Lexington, Fla., and it was decided

that all the mines shall close indefinitely January 1. The subject of prices was thoroughly discussed, and the miners decided that at present prices to continue operations would be useless.

Judge Andrews, of the Supreme Court of the State of New York, appointed on the 17th inst. Kauffman Simon receiver for the Excelsior Pebble Phosphate Co., at No. 63 William street, New York city, and at Excelsior Park, Polk county, Fla., on the application of Richard Arnold, a stockholder. The company was incorporated in 1892 with a capital stock of \$300,000, of which \$255,000 was issued to work phosphate lands in Florida.

Receipts of phosphate rock have been quite liberal at Fernandina, Fla., during the week ending the 21st. Every freight train from the South brings phosphate, and January's foreign shipments will probably exceed largely those of the current month. The British steamship Benschaw finished loading on the 20th, and took on board 1100 tons of rock in less than ten hours. She is loaded by the French Phosphate Co. for parties in London.

The phosphate shipments from the port of Charleston, S. C., to domestic ports last week were as follows: Schooner Clara A. Phinney for New York with 652 tons, and Isaac H. Tillyer with 825 tons, and schooner Tillie Vanderherchen with 575 tons, for Baltimore. The total shipments of phosphate through the port of Charleston from September 1 to December 20, inclusive, amount to 38,777 tons to coastwise ports, against 26,619 tons for the corresponding period last year.

The British steamship Bendo sailed from Port Tampa for Rotterdam on the 17th with 2000 tons of phosphate from the Bradley Phosphate Co., and the schooner Laura C. Anderson for Car-taret, N. J., with 1400 tons of phosphate from the Bone Hill Phosphate Co.; the schooner Carrie A. Lane on the 20th inst. for Baltimore with 1240 tons of pebble from the Palmetto Phosphate Co., and barkentine Joseph W. Elwell for Baltimore with 1740 tons of pebble from the Bone Valley Phosphate Co.

The Newport News Shipbuilding and Dry-Dock Company has received from Paterson, N. J., what is said to be the largest casting ever sent out of that State and one which caused great trouble in providing the proper facilities for its shipment. The casting is a ship's rudder frame. It is twenty-five feet long and eleven feet wide and weighs fourteen tons. When loaded upon a car it was found that it would extend over both tracks, so an order was sent along the line to keep all other trains off the line between Paterson and Jersey City until the train carrying the frame reached Jersey City. Here it was placed on a vessel and transported by water.

Among the publications on textiles of much value is a work which has been written by Mr. C. P. Brooks, entitled, "Weaving Calculations." Mr. Brooks has occupied the position of lecturer on cotton manufacturing at the Blackburn Technical Schools in England, and is an authority on matters of this kind. Included in the work are calculations on growth, yarn, looms, wages, heald and reed, also information relative to machinery in general and textiles. Mr. Brooks has recently taken the position of consulting textile engineer to the D. A. Tompkins Co., of Charlotte, N. C., and will doubtless be a valuable aid to those contemplating the erection or improvement of textile plants.

Rumor says that the Talladega Furnace, at Talladega, Ala., will be put into condition for blowing in.

MECHANICAL.

The Forbes Engines.

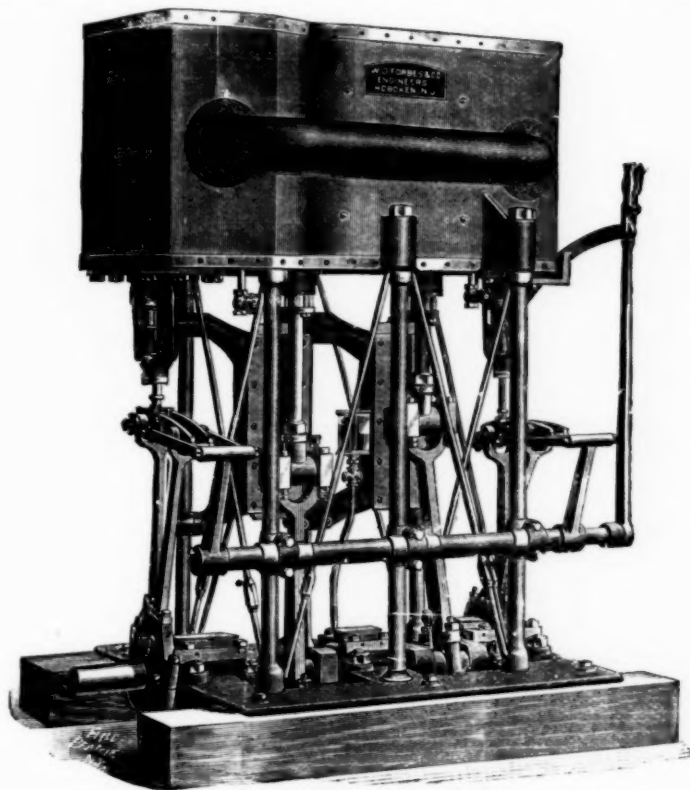
In the development of the modern steam engine it is estimated that more capital and more scientific ability of the

steam engines, they brought into play advantages which are obtainable only through long practice. A plant which developed with the growth of their business, every piece of equipment being carefully selected, and a directing and working force trained by experience,

and valve brasses running between the yokes. Because of this engine's simplicity it needs very little attention, and its design allows of great compactness, an important essential in these days when space cuts such a figure in laying out a plant. It is claimed that this engine occupies one-half to one-third less room than any other engine on the market of as high grade, economy and regulation being considered.

The builders do not claim novel features for their yacht engine except in the general design, which is extremely open, being accessible from every side and giv-

generally appreciated. Attention is called to the service rendered in this connection by the "Little Wonder." From the observation users the usefulness of this device is pointed out substantially as follows: On high-speed engines it is found to lubricate driving rod and eccentric perfectly, the instance alluded to showing a great saving in oil and waste, and no oil throwing from the cups on or over the engine bed. One filling of the oil cup proved sufficient on the eccentric at a speed of 230 revolutions per minute on an average of eight hours per night for twenty-one nights. Another case shows



THE FORBES YACHT ENGINE.

highest order have been employed than in the evolution of any other machine. The engine builder of today is a chief of industry who has brought together the best engineering talent, the finest materials and the most skilled workmanship in a harmonious combination. Severe and costly lessons of experience and many failures have attended the progress of this combination. Practical minds have suggested ideas that after expensive experiment proved impracticable. In the mass of such suggestions intervals of success have also occurred. The way has been slow, despite the vast amount of study and practice devoted to the production of a perfect type of steam engine. To build a machine that would work, and work satisfactorily, has not been an unusual task. There are many such engines. The real work has been to perfect details, to overcome obstacles of seeming unimportance, to enlarge the efficiency and guarantee the reliability of service which is the demand of modern practice. Untiring energy to produce something greater than ever achieved before to secure an engine that would render positive service under most trying conditions meant the development of a machine as perfect as the finest watch on a scale of greatness to turn the heaviest machinery. This ambition is reflected by a close study of the modern engine. A thing of beauty, every part working in seeming sympathy, swift and exact, powerful and complete, a wonder and a necessity—such is this great pioneer of higher industrial progress, the perfected steam engine.

In line with the policy of bringing to our readers' attention interesting advances in the production of all classes of machinery, we illustrate herewith the Forbes engine. Something about the concern that builds these engines will explain the success attained by them. W. D. Forbes & Co. are located at Hoboken, N. J. As engineers and manufacturers engaged in devising, designing and perfecting machinery they have had an extensive experience in the development of effective mechanical ideas. Turning their attention to the construction of

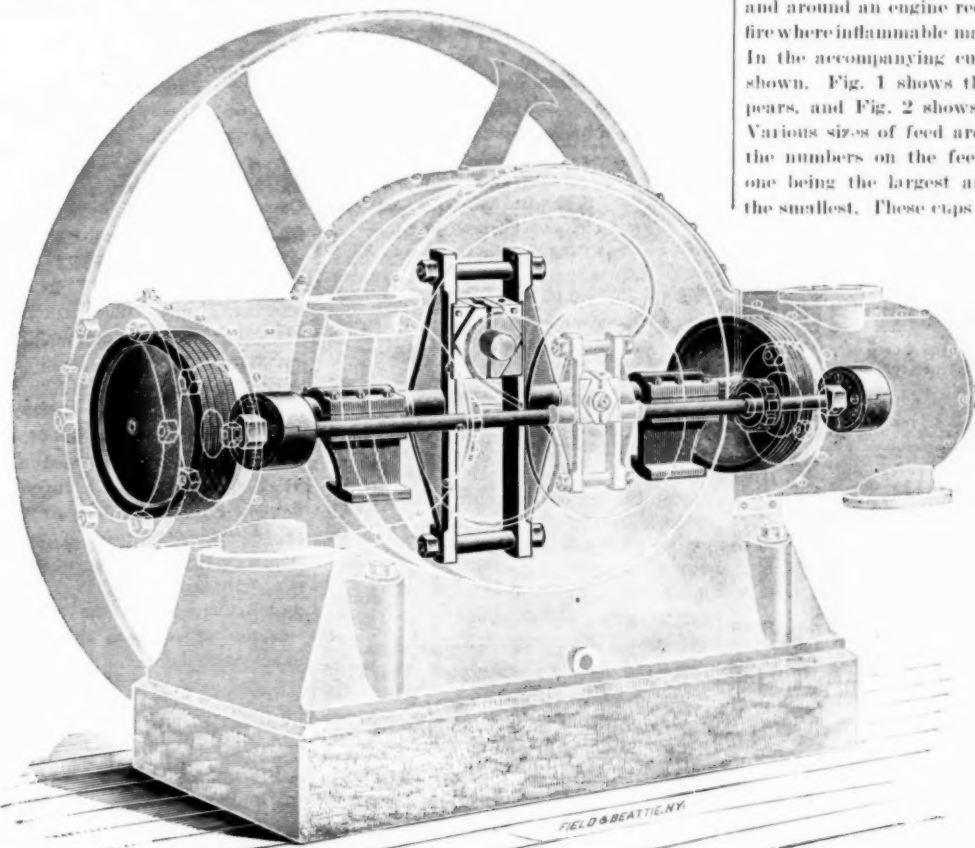
were elements assuring success. Strong believers in the principle that the best things we have today have been built upon past failures, and to this end, after exhaustive experiments and the results

of carefully-watched actual practice, they confidently place their engine before the public. We illustrate two styles of this engine.

The horizontal engine consists practically of the following moving parts: Two piston valves, two valve stems with yoke ends, two pistons, two piston-rods with yoke ends, two balanced discs with crank-pin between them, the crank-pin

ing it an airy appearance. With these advantages it is pointed out that no sacrifice has been made to strength. This firm caters especially to the high-grade racing-yacht trade. The material throughout is of the best, and the same care that is expended on machine tools is put upon engines.

With this brief summary of the points of the Forbes engine a general idea is conveyed. Those who desire to go more into detail and learn of the adaptability of the Forbes engines for various service, should open correspondence with the manufacturers.



THE FORBES HORIZONTAL ENGINE.

"Little Wonder" Oil Cup.

A number of noteworthy examples of the utility of the "Little Wonder" oil cup, illustrated herewith, indicate that its title is not a misnomer. Opportunities for a considerable saving in the use of lubricants on machinery are recognized by economical engineers, and the value of an effective device for the purpose is

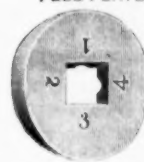
on the market by W. J. Ferguson, Equitable Building, Baltimore, Md.

Mr. W. J. Thackston, of Greenville, S. C., says: "This section is enjoying an abundant prosperity. Most of the cotton crop was marketed at eight cents and above."

Subscribe to the Manufacturers' Record. Price \$4 a year, or six months for \$2.



FEED PLATE



PATENTED AUGUST 6th 1895.

only one-twenty-fourth as much oil used as formerly. The engineer of an electric-power plant states that with these cups a saving of about one gallon of oil per night is shown. A saving of 65 per cent. in the amount of oil is reported from a planing mill, and results even more remarkable are reported from leading concerns. The "Little Wonder" works automatically, feeding only when the engine is running. Being simple in construction, it is labor-saving. A mica face enables the attendant to see when the cup needs oil, and lessens the liability of breaking. The feature it possesses of not throwing oil over and around an engine reduces the risk of fire where inflammable material is present. In the accompanying cuts this device is shown. Fig. 1 shows the cup as it appears, and Fig. 2 shows the feed plate. Various sizes of feed are represented by the numbers on the feed plate, number one being the largest and number four the smallest. These cups are being placed

LUMBER.

[A complete record of new mills and building operations in the South will be found in the Construction Department.]

Lumber Directory.

Readers of the Manufacturers' Record who may be in the market for lumber of any description are recommended to the directory of Southern lumber manufacturers and dealers which appears among the advertising pages.

LUMBER MARKET REVIEWS.

Baltimore.

Office Manufacturers' Record,
Baltimore, Md., December 26.

The holiday week is usually characterized by dullness in the local lumber market, and the present week under review is no exception to the rule. The various lumber firms are generally engaged in stock taking and getting matters in shape to commence the new year. A moderate business has been done in air-dried yellow-pine, and there has been some demand from planing mills and box factories. Receipts continue light, and present stocks are ample for all requirements. Kiln-dried North Carolina yellow pine is in fair request from out-of-town buyers, and manufacturers look for quite a good trade early in the new year. The business in white pine is fair, with stocks well assorted and prices steady. In hardwoods there is some demand from out-of-town buyers, and also some local trade, but the aggregate business is light. The export trade remains unchanged, with shippers cautious in their movements, and any shipment made is on an order.

The following list represents the prices current at this date:

[The quotations for yellow pine are for cargo lots, and for all hardwoods the figures indicate values for choice car lots.]

VIRGINIA AND NORTH CAROLINA PINE		
5-4x10 No. 2, kiln dried.....	16 00¢	18 00
5-4x12 No. 2, kiln dried.....	17 50¢	18 50
4-4x10 No. 1, kiln dried.....	16 50¢	17 50
4-4x12 No. 1, kiln dried.....	17 00¢	17 50
4-4 nar. edge, No. 1, kiln dried.....	13 00¢	14 00
4-4 wide edge, No. 1, kiln dr'd.....	18 00¢	19 00
6-4x10 & 12, No. 1, kiln dried.....	23 00¢	24 00
4-4 No. 1 edge floor, air dried.....	13 00¢	14 00
4-4 No. 2 edge floor, air dried.....	10 50¢	11 50
4-4 No. 1 12-in. stock, air dried.....	14 50¢	15 50
4-4 No. 2 12-in. stock.....	12 00¢	13 00
4-4 edge box or rough wide.....	7 50¢	8 50
4-4 edge box do. (ord. widths).....	7 00¢	8 00
4-4 edge box do. (narrow).....	6 50¢	7 50
4-4 12-inch or rough wide.....	9 50¢	10 00
3/4 narrow edge.....	6 00¢	7 00
3/4 wide.....	7 00¢	8 00
3/4x10-inch.....	8 00¢	9 00
Small joists, 2 1/2-12, 14 and 16 long.....	8 50¢	9 50
Large joists, 3-16 long & up.....	9 50¢	10 50
Scantling, 2x3-16 and up.....	8 50¢	9 50

WHITE PINE.

1st and 2d clear, 4-4, 5-4, 6-4 & 8-4.....	48 50¢	50 50
3d clear, 4-4, 5-4, 6-4 and 8-4.....	43 00¢	44 00
Good edge culls.....	14 00¢	15 00
Good stock.....	16 50¢	17 50

CYPRESS.

4-4x6, No. 1.....	20 50¢	21 50
4-4x6, No. 2.....	14 50¢	15 50
4-4x6, 16 feet, fencing.....	12 50¢	13 50
4-4x6, rough.....	9 00¢	9 50
4-4 rough edge.....	9 00¢	9 50
4-4 edge, No. 1.....	18 00¢	19 00
4-4 edge, No. 2.....	12 00¢	13 00
Gulf, 4-4, Nos. 1 and 2.....	28 50¢	30 50
Gulf, 6-4, Nos. 1 and 2.....	31 50¢	32 50

HARDWOODS—WALNUT.

5-8, Nos. 1 and 2.....	65 00¢	75 00
4-4, Nos. 1 and 2.....	80 00¢	90 00
5-4, 6-4 and 8-4.....	85 00¢	95 00
Newell stuff, clear of heart.....	85 00¢	100 00
Culls.....	20 00¢	30 00

OAK.

Cabinet, white and red, Southern, plain-sawn and good, 1 and 2, 8 inches and up, 12 to 16 feet long, 4-4.....	20 00¢	33 00
Quartered white, Western, 1 and 2 quality, all figured, 6 inches and up wide, 4-4.....	53 00¢	55 00
Culls.....	10 00¢	15 00

POPLAR.

Nos. 1 and 2, 5-8.....	24 50¢	25 50
Nos. 1 and 2, 4-4.....	28 00¢	30 00
Nos. 1 and 2, 6 and 8-4.....	32 50¢	33 50
Culls.....	13 00¢	16 00

SHINGLES.

Cypr., No. 1 h'rts, sawed, 6x20.....	7 25¢	7 75
No. 1 saps, sawed, 6x25.....	5 50¢	6 50
No. 1 hearts, shaved, 6x20.....	6 50¢	7 50
No. 1 saps, shaved, 6x20.....	5 25¢	5 50

LATHS.

White pine.....	2 70¢	2 75
Spruce.....	2 15¢	2 25
Cypress.....	1 15¢	1 25

Charleston.

[From our own Correspondent.]
Charleston, S. C., December 23.

A fair volume of business has been re-

corded here during the past week in nearly every department of the lumber industry. The demand for all desirable grades of manufactured lumber is fairly active, with prices generally firm at quotations. At all milling points adjacent to this city there is more activity than usual among the mills and orders are generally plentiful. The trade in crossties is gradually increasing in volume and the demand from northern points is good. A commission for a charter has been issued to the Southern Crosstie and Stave Co., with headquarters in this city. The corporators are John F. Werner, Walter G. Gayton and T. Moultrie Mordecai. The capital stock of the company is placed at \$25,000, with the right to increase it to \$1,000,000. The company is to do a general lumber business, with incidental branches. The general lumber market closes very steady at the following quotations: Merchantable lumber, \$14 to \$16 for city-sawn, \$12 to \$14 for railroad; square and sound, \$9 to \$13 for railroad, \$8 to \$11 for raft; dock timber, \$4.50 to \$6.50; shipping, \$8.50 to \$10.50. There is a fair demand for shingles and prices are steady at \$5 to \$7 per thousand. The clearances reported during the past week are as follows: Schooner Bessie Whiting with 410,000 feet of lumber, and steamship Seminole with 110,000 feet, both for New York. The schooner Robert A. Snow cleared for New Haven with 400,000 feet of yellow-pine lumber; the steamship George W. Clyde took out 200,000 feet of lumber, and the schooner Thomas A. Ward 684,000 feet, both for New York. The total exports of lumber and timber since September 1 amount to 20,976,674 feet to domestic ports and 668,000 feet foreign, making a total of 21,644,674 feet, against 19,573,841 feet for the corresponding period last year. Yellow-pine lumber freights are firm, with a moderate offering of handy-sized tonnage. Lumber rates to New York and Sound ports are quoted at \$4.62 1/2 to \$5 and proportionately for ties. The last charter reported was a schooner, 654 tons, Charleston to Philadelphia with crossties at 19 cents, coal out \$1.

Savannah.

[From our own Correspondent.]
Savannah, Ga., December 23.

The improvement here in the lumber and timber trade is most decided, and during the week under review the movement has been more active than usual. Manufacturers and others in the trade are looking forward to an active business during the winter months. There is a better inquiry and demand from nearly all Northern and Eastern ports, and mostly for the better grades of manufactured material. The market is very firm at the following figures: Ordinary sizes, \$11 to \$12; difficult sizes, \$13 to \$18; flooring boards, \$15 to \$22; shipstuffs, \$16.50 to \$20, and sawn ties, \$10. Among the clearances during the past week the following vessels are reported: For Philadelphia, schooners Harriet C. Kerlin with 397,000 feet of pitch-pine lumber; Chauncey E. Burke with 67,250 feet of lumber and 12,212 crossties; Three Sisters with 248,202 feet, and by steamer 165,000 feet. The schooner Johana cleared for New York with 493,000 feet of lumber, and by steamer 51,389 feet and 75,000 shingles. The schooner John E. du Bignon cleared for Boston with 448,104 feet, and steamer Chattanooga with 7661 staves and 647,657 feet of lumber. The schooner Island City cleared for Baltimore with 288,739 feet of lumber, and by steamer 13,963 feet. The schooner Hugh Kelly cleared for Philadelphia with 13,056 crossties, and schooner Hilda with 421,835 feet. The schooner Mary F. Godfrey cleared for Port Delaware with 1656 crossties and

408 spiling. Lumber freights are steady, with rates unchanged. The quoted rates from this and nearby ports of Georgia are \$4.25 to \$5.50 for a range including Baltimore and Portland, Me.; to Rosario, \$12 to \$13; to Buenos Ayres and Montevideo, \$10 to \$11, and to Rio Janeiro, \$14. Steamer rates to New York and Philadelphia are quoted \$7, to Boston \$8 and Baltimore \$5. The last charter reported was a schooner, 611 tons, Savannah to New York at \$4.50.

Brunswick.

[From our own Correspondent.]
Brunswick, Ga., December 23.

The lumber and timber industry of this port is, perhaps, showing greater activity than any other on the Atlantic coast. A very pronounced demand has set in, and both from foreign and domestic sources some excellent orders are coming. All the mills here and at adjacent points are in possession of numerous orders, and many are making use of increased prices in order to get out their bills. The prominent lumber firm known as the Hilton-Dodge Lumber Co. had only last week completed some changes at its mills at St. Simons, when news reached here on the 20th inst. that its valuable saw-mill plant at that place had been destroyed by fire. The cypress saw mill located on the bluff south of the steamboat pier, with 4,000,000 feet of cypress lumber, 100,000 shingles and 100,000 laths, was destroyed. The loss is estimated at \$140,000, and the insurance is managed through the New York office. It is stated today that the state of the business of the company is such that probably the work of rebuilding will commence at once. The demand here for manufactured timber shipments is now very decided, and the business of the year will aggregate a larger sum than usual. The new mills built by O. N. Taylor, of Michigan, representing an outlay of \$125,000, are now completed and have commenced operations. Among the clearances during the week the following vessels are reported: Schooner Josephine Elliott for Boston with 342,000 feet of lumber; for New York, schooners Anna Pendleton with 487,000 feet of lumber; Charner with 307,000 feet, and John H. Tingue with 405,000 feet; the schooner Fannie L. Child with 328,000 feet of lumber for Fall River, and schooner Jennie Hulbert for New Haven with 357,000 feet of lumber. The schooners Frank Howe and Jacob L. Haskell have arrived and are loading lumber for Boston. The schooner Helen L. Martin is loading for New York. Messrs. J. P. Whitney & Co., ship brokers, of New York, report the following charters for Brunswick and vicinity: British steamer Powderham, 1050 tons, to load timber for South African ports; Susan H. Davidson, 519 tons, Savannah to New York and Brunswick to New York, two trips, ties, and schooner E. H. Blake to Providence with lumber.

Fernandina.

[From our own Correspondent.]
Fernandina, Fla., December 23.

Present indications point to an early resumption of business in every department of the lumber industry of this port, and shippers generally attach much importance to Fernandina as a shipping port for yellow-pine lumber. The demand during the past three months for lumber and timber has been quite active, and a number of vessels are now loading for foreign and domestic ports. Of the future prospects of this port a prominent lumber shipper says: "I would as soon do business in Fernandina as in any port on the coast, and if we had not our property leased to advantage we would be shipping from here today. There is no reason for Fernandina to lose her pres-

tige as a lumber-shipping port, for there is no port that I know of that has any better facilities." It is currently reported that two prominent millmen from Boston, Mass., have been in the city for several days prospecting, and have examined the best sites in and around the city for erecting a saw mill. The prospects for securing a bucket and tub factory are said to be favorable, and the question came up at a meeting of the Chamber of Commerce on Saturday last for discussion. A communication from a large manufacturer of woodenware relative to obtaining a site was read and considered. A committee was appointed to confer with the projectors of the enterprise and see what could be accomplished. Among the clearances during the past week the following vessels are reported: The schooner Maud Snare, loaded at Orange Bluff, cleared for Georgetown, Demerara, B. G., with a cargo of 217,000 feet of yellow-pine lumber. The Mallory steamship Rio Grande sailed for New York on Friday last with 265,000 feet of yellow-pine lumber, 250,000 cypress shingles, 200 cases of cedar and other merchandise. The schooner Isaiah K. Stetson is loading lumber at King's Ferry, and will take a cargo to Basse Terre, St. Kitts, W. I. Several vessels are due to load lumber for coastwise ports. A schooner, 543 tons, was chartered in New York last week to load here for that port at \$4.62 1/2.

Mobile.

[From our own Correspondent.]

Mobile, Ala., December 23.

A decided change has taken place here in the lumber market, and transactions during the week have been of greater volume, with liberal shipments to coastwise and foreign ports. The demand is mostly from South and Central American ports, with prices firm for all desirable material. The timber trade is showing up better and prices are firm and a shade higher. The recent rain was welcomed by timbermen, and there is now a prospect of getting out some timber and logs. A four or five-foot rise in the river would give considerable material for the mills and for export. Hewn timber is now quoted at 12 cents on a basis of 100 cubic feet average B1 good, contracting 12 cents basis; hewn oak, 18 to 20 cents per cubic foot; hewn poplar to average 22 inches width by contract, 12 cents per foot. Sawn timber when placed upon the market will bring 11 cents per cubic foot, 40-foot average, contracting 11 to 11 1/2 cents basis. Cypress is in fair demand at 5 to 9 cents per cubic foot, according to average. The demand for cedar is limited and quotations are 20 to 30 cents per cubic foot. The shipments of lumber during the past week aggregate nearly 4,000,000 feet and distributed as follows: Barks Mod with 378,214 feet of yellow pine, and Agostino M. with 639,615 feet, both for Buenos Ayres, A. R.; bark Sprott for Montevideo with 501,051 feet; schooner Iolanthe for Porto Rico with 358,165 feet; schooner Blake for Kingston, J. M., with 150,000 feet; schooner Fowler for Frontero, Mexico, with 67,714 feet, and schooner Nason for Ruatan, S. H., with 5000 feet. The bark Ragna cleared for Shields, Eng., with 37,500 cubic feet of sawn timber and 16,241 superficial feet of lumber. The bark Usko cleared for Preston, Eng., with 23,793 cubic feet of sawn timber and 8487 feet of lumber, and the steamship Hugo for London with 1,279,000 feet of lumber. Among the charters reported are a British schooner of 271 tons from Mobile to Port au Prince on private terms, and a schooner, 366 tons, Pensacola to Boston at \$6. A meeting of the Alabama Lumber Co. was held at Montgomery on Saturday last, when but little

business was transacted. The price committee from the States of Alabama, Texas, Arkansas, Missouri and Mississippi will meet in Birmingham on January 6, when a price-list will be adopted for the States represented. The court has appointed Mr. Robert Middleton and Mayor S. F. Prince as receivers of all the property, effects and assets of the Seaboard Manufacturing Co. The receivers left on Friday last for Fairford to take formal possession of the property there. They will also take steps at once to put the property in operation. The total shipments of lumber from this port since September 1 amount to 18,585,285 feet, against 18,179,646 feet for the corresponding period last year.

Beaumont.

[From our own Correspondent.]
Beaumont, Texas, December 27.

With the advent of the new year a marked improvement has characterized the lumber market in this section during the past week. As usual at this period of the season, dealers and others in the trade are generally stock-taking, and until the affairs of the old year are wound up very little new business is contracted. The week under review, however, shows a brisk demand for material, and dealers are sending in orders earlier than usual, indicating that stocks have generally been reduced to a minimum. Yard stocks are in good demand and some saw bills have been placed. The Journal in its review of the market says: "The improvement in demand noted last week has continued, the number of orders from dealers having increased. This circumstance is conclusive of a good trade among dealers, for it is not their custom to lay in supplies just previous to the stock-taking season unless urged thereto by the demands of trade. There has also been a demand for ties and other railroad material, and it looks as if the new year will dawn amid brighter prospects for lumbermen." Orders for between 2,000,000 and 3,000,000 feet of railway material have been placed here during the week. One million feet was ordered by the Mexican Central from the Reliance and the Consolidated Export Lumber Co. to be shipped by water, and material for the spur from the main line of the East Texas road to Port Arthur, with other bills, aggregate the amount mentioned. The Galveston News, in its review of the lumber situation at Orange, says: "There have been nearly as many cars sent out this week as last, though there are indications now that point to lighter shipments from some of the mills for December than were had in November; but there will be a very distinct difference between the output of the month of December, 1894 and that of December, 1895, in favor of the latter. Even then it will not quite meet the expectations of such manufacturers as had fixed their eyes on something like the work turned off in August last." Stocks of shingles at Orange are scarce, with prices firm, and the few that are dry enough to ship are disposed of at outside figures.

Lumber Notes.

At Farnsworth Bros.' lumber-yard at Scranton, Miss., on the 18th inst., fire destroyed between three and four million feet of lumber.

The saw mill and dry-kiln of the Southern Lumber Co., recently built at White Oak, N. C., was burned last week, together with 175,000 feet of lumber.

The receipts of lumber at the port of New Orleans for the week ending the 19th inst. amounted to 1,865,000 feet and for the season 38,581,500 feet, against 27,736,374 feet last year.

The Auburn Wagon Co., of Greencastle, Pa., has contracted to move its plant

to Martinsburg, W. Va., within the next few months. It will employ at the start about seventy-five hands.

The planing, sash, door and blind mill of Mrs. Dr. New, at Carrollton, Ga., was destroyed by fire on the 18th inst. The loss is estimated at between \$3000 and \$4000, with no insurance.

The Rose City Lumber Co.'s business at Little Rock has increased to such an extent that machinery of greater capacity has been added. The company is putting in a larger boiler and engine.

Messrs. Waldron Hill and Buskirk's immense spoke factory at Bloomington, Ind., was destroyed by fire on the 17th inst. The loss is estimated at \$15,000, with insurance about \$7000. They will rebuild.

The Norfolk Chamber of Commerce reports the receipts of wood and its products for the month of November as follows: Lumber, 24,465,793 feet; logs, 11,016,921 feet; staves, 148,500 M; shingles, 4,189,200 M, and railroad ties, 14,950 M.

The Hilton & Dodge Lumber Co., of Brunswick, Ga., has increased its force at the St. Simon's mills, and also at its new possessions, the Altamaha cypress mills, near Brunswick. The increase is to meet the demand for manufactured timber shipments.

A charter has been issued to the Fairmount Planing Mill, of Fairmount, W. Va., with an authorized capital of \$50,000. The incorporators are M. L. Hutchinson, C. E. Hutchinson, J. M. Jacobs, George M. Jacobs and John W. Mason, all of Fairmount.

The Junction City Lumber Co., of Junction City, Ark., filed articles of incorporation with Secretary of State Armistead on the 12th inst.; capital stock \$34,000, all paid in. The officers of the company are Adelbert Strauss, president; William Cox, vice-president; Max A. Nulsen, secretary, and A. J. Jones, treasurer.

A commission for a charter was issued last week to the Southern Crosstie and Stave Co., with headquarters in Charleston, S. C. The incorporators of the company are John F. Werner, Walter G. Guyton and T. Moultrie Mordecai. The capital stock is \$25,000, with power to increase to \$1,000,000.

The Sparks & Moultrie Railway, which was recently purchased by the Atlanta Lumber Co., has been put in good condition for a distance of nine miles west from Tifton, Ga. It is probable that in a few months the road will be completed to Moultrie, near which place the company has a large tract of timber land.

Among the exports from Pensacola last week the following vessels cleared: Ship Z. Ring with 957,000 feet of lumber for Rio Janeiro; schooner Frederick Roessner with 349,000 feet of lumber for New Bedford, and bark Fortunato for St. Louis de Rhone with 42,000 superficial feet of sawn timber and 407,000 feet of lumber.

Messrs. P. C. Clegg and J. C. C. Horne, of Americus, Ga., sold last week to Mr. R. E. Johnson, of Atlanta, a tract of hardwood timber covering 6000 acres of land lying along Flint river, in Sumpter, Lee and Macon counties. Mr. Johnson, it is understood, will export large quantities of this timber, to be shipped from Savannah or Brunswick.

The works of the Michigan Lumber Co. at Jacksonville, Fla., are going up rapidly, and the planing mill will be ready for use early in January of next year. The dry-kilns will be erected in a few weeks. A meeting of the stockholders will be held in the near future, when the election of officers and a board of directors will take place, after which the company will be incorporated.

The committee appointed at a citizens' meeting held in Palatka, Fla., several weeks ago to secure funds for buying a site for a sash, door and blind factory met on the 21st and reported that the necessary funds had been raised and the site obtained. This secures for Palatka the factory. Mr. Selden has left for Rome, N. Y., and will at once begin to make preparation to bring his plant to Palatka.

It is stated that the Brooks Lumber Co., of Toledo, Ga., will hereafter make all its shipments of lumber from the port of Jacksonville, Fla. The Brooks Lumber Co. employs from 300 to 500 convicts, and turns out about 25,000 ties a week. The schooner Jennie Righter took out of Jacksonville the first cargo of ties for the company last week, and two large schooners are due to arrive shortly to load with ties.

It is stated that the Major Stevens timber tract of 4000 acres of pine, oak and poplar, situated in the lower end of Morgan county, Tenn., has been purchased by F. R. Wells, of Harriman, and associates at Buffalo, N. Y. The new company will erect a saw mill on the ground and manufacture quartered oak, which, with the best varieties of lumber, will find its principal market in Buffalo. Its office will be in Harriman, Tenn.

The following vessels cleared last week from Jacksonville, Fla., with lumber: Schooners Collins W. Walton with a cargo of 330,000 feet of yellow pine, and the Robert W. Dasey with 325,000 feet, both for Philadelphia; schooner Isaac N. Kerlin for New York with 316,000 feet of yellow pine; schooner Job H. Jackson for Perth Amboy, N. J., with 280,000 feet. The new Clyde steamship Comanche sailed for New York on the 21st with 500,000 feet of yellow-pine lumber, 4000 cross-ties and 3000 bundles of shingles, with other merchandise.

The Teche Lumber and Shingle Mills plant at Patterson, La., is now shut down for the purpose of putting in an almost entirely new mill and a thorough overhauling. The new work will consist of a Filer & Stowell nine-foot band mill and a new log slide. An iron refuse burner is also in course of erection, and a shingle mill annex will be added as soon as the saw mill is put into active operation. The mill will begin operations again by January 15 or February 1. The Teche Lumber and Shingle Mills are doing business under the firm name of N. B. Trelue & Co.

A meeting of the Alabama Lumber Co. (Limited) was held in Montgomery on the 21st inst., the most important action being the election of Mr. J. A. Reid, president, vice Mr. John Flowers, resigned, Mr. D. M. Rogers, of Atlanta, was elected secretary and manager. On the 6th of January next the price committee of Alabama will meet committees from the States of Texas, Arkansas, Missouri and Mississippi at Birmingham. At this meeting a price-list will be adopted for the several States represented and the organization will be completed, affording protection to the entire lumber industry of the South.

TRADE NOTES.

Business with the Kennedy & Morelock Stave Co., Wynne, Ark., has called for added facilities. Improvements recently made will increase the company's production about 25 per cent. A 16x24 automatic Atlas engine is among the new equipment.

A perfect success in the transmission of power by electricity is reported by Drew, Selby & Co., Portsmouth, Ohio, shoe manufacturers. A 175 horse-power Ball engine, made by the Ball Engine Co., direct connected to a General Electric Co. dynamo, furnishes the power.

The management of the business of the Weston Engine Co., Painted Post, N. Y., is

new in the hands of Mr. A. Allen. This concern is comprised of Messrs. Abijah Weston, F. E. Bronson and W. Allen. The latter is well known as a progressive business man.

The Clifton Manufacturing Co., of Clifton, S. C., lately placed with the Jewell Belting Co., of Hartford, Conn., an order for the full equipment of belting for its new mills. This order involves several thousand dollars.

The American Ship Windlass Co., of Providence, R. I., has within the last few months placed in Southern territory the following orders: A No. 5 half pump brake windlass for barge No. 4, Norfolk, Va.; No. 3 steam capstan windlass for United States lighthouse tender Pansy; two 25-inch steam gypsies for United States snagboat Roanoke; dock steam gypsy for the Phosphate Mining Co.; 20-ton winch for the Wimsboro Granite Co.; No. 10 new style steam pump brake windlass and No. F steam capstan aft for steamer building for the Plant line. In addition to the above list, its sales include hundreds of orders for windlasses, hand capstans, etc., to be sent all over the United States and to foreign countries.

TRADE LITERATURE.

A calendar tablet sent out by the Pettet Machine Works, Newton Upper Falls, Mass., is a compact and useful article. It will be furnished to cotton mills and overseers upon application. Making a convenient memorandum, it also furnishes a constant reminder that American-built cotton-mill machinery furnishes a standard for the world.

The use of telephones for short distances is increasing to such an extent that hardly a big store or factory of any kind but has a number of them installed. The Universal Telephone Co., of Indianapolis, Ind., is introducing a system and instrument for which it claims much superiority, and many excellent testimonials of it are presented in the company's pamphlet.

A new catalogue has been issued by Messrs. John Whiteley & Sons, Limited, of Halifax, England, the well-known manufacturers of card clothing for cotton cards. It is a very neat and readable affair, and goes very fully into the various improvements which have so revolutionized carding in the last few years, treating especially fully of the use of hardened and tempered steel wire, improved foundations and Messrs. Whiteley's well-known "plough ground" wire. More valuable even than this, however, is the comprehensive and detailed information which they give for the benefit of superintendents, carders and others regarding the use and care of card clothing. From the clothing and re-clothing of the machines to the grinding and regrinding, all the many little points of attention which make the difference between smooth, clean, sharp points and rough, rusty and loose or broken ones, are fully described, and the catalogue is in fact a most useful text-book on this very important matter. No superintendent or carder among the Southern mills should be without this publication at his hand, and we should be pleased to receive inquiries from anyone interested among the cotton mills of the South for copies of this pamphlet, and we would make it our care to obtain these direct from Messrs. John Whiteley & Sons.

A concise little pamphlet furnishes readable data about Westinghouse engines. It explains the thorough tests made of these engines. The completeness of these tests will interest engine users. In the testing-room are two long continuous foundations, with cast-iron tops made like a planer bed, on which any size of engine can be accommodated. The steam and exhaust piping is arranged for connecting nine engines at one time. Every engine, from the five horse-power Junior to the 700 horse-power compound, after being assembled, is taken to the testing-room and run continuously for several days under full load and with every condition of actual service. From there it is removed to the overhauling floor and taken entirely to pieces. An examination of the piston and valve rings is then made to ascertain if they bear properly all around; the journals and wearing surfaces are inspected to make sure there is no tendency to heat or cut, and a final and exhaustive search is made for defects of any nature. When everything is known to be right the parts are reassembled, all adjustments made permanent, and the engine is then ready for jacketing, painting and shipment. Inasmuch as the compound engine is more particularly the exponent of high economy, each individual engine of this class goes through a complete test in addition to the above-described running test.

CONSTRUCTION DEPARTMENT.

THE MANUFACTURERS' RECORD seeks to verify every item reported in its Construction Department by a full investigation and complete correspondence with everyone interested. But it is often impossible to do this before the item must be printed, or else lose its value as news. In such cases the statements are always made as "rumored" or "reported," and not as positive items of news. If our readers will note these points they will see the necessity of the discrimination, and they will avoid accepting as a certainty matters that we explicitly state are "reports" or "rumors" only. We are always glad to have our attention called to any errors that may occur.

*Means machinery, proposals or supplies are wanted, particulars of which will be found under head of "Machinery Wanted."

In correspondence relating to matters reported in this paper, it will be of advantage to all concerned if it is stated that the information was gained from the Manufacturers' Record.

ALABAMA.

Florence—Telephone System.—The Citizens' Telephone Co. has been formally organized with W. P. Campbell, president; M. B. Shelton, vice-president; James Burtwell, treasurer; H. B. Lee, secretary.

Fort Payne—Lime-kilns.—P. K. Dunn, of Fort Payne, and Chas. R. Folsom, of Boston, have bought the Fort Payne Lime Works.

Montgomery—Cotton Mill.—The State will erect a cotton mill to be operated by convicts, mostly negroes; buildings to be 100x200 feet, two stories high, and equipped at the start with 3000 spindles, with room for more. Address the governor of Alabama for further information or W. J. Varden, secretary.

Sheffield—Electric and Water Plants, etc. The Consolidated Water & Electric Light Power Co., with a capital stock of \$250,000, has been organized, and will in the near future expend upon the improvement of the water-works and electric-light plants already in operation \$50,000. The following are the officers and directors: E. F. Emsen, C. B. Ashe, L. A. May, F. V. Evans and W. R. Brown; E. F. Emsen, of Birmingham, president, and C. B. Ashe, of Sheffield, secretary and treasurer.

ARKANSAS.

Junction City—Lumber Mills.—The Junction City Lumber Co., capital stock \$34,000, has been incorporated with Adelbert Strauss, of St. Louis, Mo., president; Wm. Cox, vice-president, and Max A. Nilsen, secretary. The company has saw mills and will erect planing mills and dry-kilns.

Little Rock—Lumber Mill.—The Rose City Lumber Co. has put in additional machinery, including boiler and engine.

Little Rock—Mining.—Incorporated at Little Rock: The Folsom Mining Co., of Leadville, Sevier county, capital stock \$50,000, by D. N. Roob, president; J. O. Stewart, vice-president; W. A. Williams, secretary and treasurer.

Thornton—Lumber Mill.—W. R. Pearson has let contract for an eight-foot band mill, 200-light dynamo, thirty horse-power engine and other machinery, making Mr. Pearson's mill output 150,000 feet daily.

FLORIDA.

Gainesville—Lumber Mills.—Jas. M. Graham, treasurer of the Gainesville Railway Co., writes that a big lumber mill will be built at McCarry.

Grand Ridge—Sugar Factory.—A contract has been closed through Jno. T. Porter for the erection of a central centrifugal sugar factory.

Jacksonville—Improvements.—Philip Wal-

ter, B. F. Dillon, A. B. Campbell and others have incorporated the Panama Park Co. with a capital stock of \$100,000 to build a grandstand, construct bicycle track, etc.

Jacksonville—Planing Mill.—The plant recently located by James R. Walsh is now being erected, and will operate as the Michigan Lumber & Manufacturing Co. The machinery is all on hand.

Jacksonville—Naval Stores.—The Jacksonville Naval Stores Co. has been organized by Baker & Holmes, of Jacksonville; Cranford, Henderson & Co., of Savannah, and W. P. Roberts, of Savannah.

Micanopy—Moss Factory.—C. A. Mathaney will establish a moss factory.

Palatka—Sash and Door Factory.—The proposed door, sash and blind factory will be erected, it is now definitely stated.

Pensacola—Lumber Mills.—The Gulf Coast Lumber Co. will apply for a charter.

Punta Gorda—Cigar Factory.—The Pacific Coast Manufacturing Co. has obtained a building 40x60 feet, three stories high, in which to start cigar manufacturing; will make 150,000 per month.

Tampa—Cigar Factory.—Jose Morales & Co. will establish a cigar factory.

GEORGIA.

Cartersville—Pants Factory.—George E. Clapp, of Michigan, will establish a shirt and pants factory to employ thirty hands.

Cleveland—Gold Mining.—A. H. Henderson is developing a new vein.

Cordele—Fertilizer Works.—The Industrial Fertilizer Co. has greatly enlarged its works, nearly doubling capacity.

Cordele—Saw Mills, etc.—D. T. Daughtry and associates have purchased timber lands in South Georgia and Florida, and will erect mills to cut lumber on same.

Dublin—Electric-light and Water Works.—The city election to consider \$25,000 in bonds for electric-light and water works will be held January 11. Address the mayor.

Fort Valley—Telephone Plant.—W. H. Harris, R. S. Harris and W. P. Harwell have incorporated the Fort Valley Telephone Co., to construct telephone system under franchise lately granted; capital stock \$5000.

Lee County—Timber Lands.—P. C. Clegg and J. C. C. Horne, of Americus, Ga., have sold to R. E. Johnson for development 6000 acres of timber lands in Lee, Macon and Sumter counties.

Macon—Sewer System.—The city engineer has submitted a final report on the proposed sewer system, to cost about \$130,000. Address the mayor.

Rome—Fertilizer Works.—The new fertilizer company, noted last week, is known as the Rome Guano Co.; capital stock \$10,000.

Rome—Shirt Factory.—W. T. Cheney is arranging for the establishment by a Northern party of a factory for manufacturing shirts, waists, corsets, etc.; will employ seventy-five hands.

St. Simon's Mills—Lumber Plant.—The Hilton & Dodge Lumber Co. will rebuild at once its burned plant; principal office of company in Darlea.*

KENTUCKY.

Falmouth—Water Works.—J. R. Poindexter, of Cynthiana, Ky., has been awarded contract at \$13,793 for the construction of water works.

Henderson—Electric-light Plant.—Pierce & Richardson, of Chicago, will prepare plans and specifications for the city's electric-light plant.

Lexington—Electric-light Plant.—The city is still considering the erection of an electric-light plant. Address the mayor.

Louisville—Chain Works.—The Southern Chain Works has been organized to manufacture chains; office in Columbia Building, care of Davis, Kelly & Co.

Middlesborough—Saw Mill.—The Shield Lumber Co. will erect a saw mill of 10,000 feet capacity, daily.

Owensboro—Cellulose Factory.—The cellulose factory, already noted, will be established at once and employ twenty-five men at the start. Mark W. Marsden, of Philadelphia, Pa., is to own and operate the plant.

Valley View—Saw Mill.—M. F. Wharton has rebuilt his saw mill.*

LOUISIANA.

Crowley—Bottling Works.—Ph. Schenkel will establish bottling works to cost \$3000.

New Orleans—Grain Elevators.—The Illinois Central Railroad proposes building additional elevators at Southport. Address J. T. Harahan, general manager.

New Orleans—Lumber Mills.—The Union Manufacturing & Lumber Co., Limited, has been incorporated with a capital stock of \$50,000 to manufacture lumber, etc. S. T. Aleus is president, and Frank L. Gordon, secretary.

New Orleans—Soap Factory.—The Le Moulin Soap Manufacturing Co. has been incorporated with a capital stock of \$20,000 to manufacture soap, etc., by G. Moulin de Grange, Geo. A. Toque, Chas. H. Washburn and others.

Patterson—Lumber Mill.—The Teche Lumber & Shingle Co. will overhaul its mill, put in 54-foot 12-inch band saw and other latest improved machinery.

MARYLAND.

Baltimore—Electric Plant.—The Maryland Electric Co. and the International Telegraph District & Construction Co. have consolidated, forming the Edison Electric Illuminating Co., with a capital stock of \$1,770,000. Alfred A. Glasier is president; E. S. Webster, vice-president, and J. Frank Morrison, manager. The Maryland Electric Co.'s present plant of 1500 arc lights and 15,000 incandescent lights will be enlarged, and another plant of the same capacity will be built.

Baltimore—Manufacturing, etc.—The Rapid Transit Construction Co. has been incorporated with a capital stock of \$25,000 for the purpose of manufacturing, etc., in which electricity is used. The incorporators are Wm. F. Rogers, Chas. H. Hopkins, Wm. O. Nelson, Harry C. Primrose and George N. Holloway.

Frederick—Underwear Factory.—The Holzman Manufacturing Co., of Baltimore, will establish a factory for shirt waists and muslin underwear; will employ seventy-five hands.

Hagerstown—Silk Mill.—The Hagerstown Manufacturing, Mining & Land Improvement Co. has donated a site to the Reynar Silk-Throwing Co., of New Jersey, which will remove its plant and dye works to Hagerstown. The ground has been staked off, and it is expected the buildings will be erected inside of sixty days. The industry, it is stated, will employ about 250 hands.

Joshua—Instrument Factory.—Herman Bernhart, of Baltimore, is erecting a musical instrument factory at Joshua.

Washington, D. C.—Lamp Company.—Application made to grant a charter to the Wheelas Electric Lamp Co., to manufacture and deal in a new patented lamp. The capital stock is \$500,000.

Washington, D. C.—Publishing.—The Liberty Publishing Co., capital stock \$25,000, has been incorporated with G. H. Wilcox, president, and C. W. Macure, secretary.

Washington, D. C.—Wine Distillery.—The Christian Xander Wine Co., with capital stock of \$100,000, has been incorporated; president, Christian Xander; vice-president, Frederick Pohndorff; secretary, August H. Plugge, and treasurer, Henry Xander.

MISSISSIPPI.

Enterprise—Sugar Refinery.—The erection of a sugar refinery is proposed. G. W. Huntley can probably inform.

Greenville—Water Works.—The city has awarded contract for its water works to G. Jaeger, of Rich Hill, Mo., at \$58,523. A. Hilder prepared the plans.

Scranton—Electric Plant.—Martin Turnbull will probably erect an electric-power plant.

MISSOURI.

Kansas City—Electric and Ice Plant, etc. J. C. Rogers, of Wamego, Kans., will erect in Kansas City a five-story building, 130 feet front, to cost \$60,000 or more, and contemplate putting in an ice plant, electric-light plant, etc.

St. Louis—Electric Plant.—The Central Railway Co. (care of Wm. S. Long) will erect an electric-power plant.

NORTH CAROLINA.

Asheboro—Gold Mining.—J. E. Walker will develop gold-bearing lands.

Charlotte—Gold Mine.—J. S. Knight (late of Philadelphia) will develop the Graham mine; machinery is now being placed.

Greensboro—Furnace.—Dr. J. M. Worth and associates have bought the North Carolina Steel & Iron Co.'s blast furnace.

High Point—Flour Mill.—R. W. Thompson will erect a flour mill of 100 barrels daily capacity.

Roanoke Rapids—Knitting Mill.—The United Industrial Co. has increased its capital stock by \$150,000.

SOUTH CAROLINA.

Beech Island—Oil Mill.—The Catherwood Oil Mill is being organized.

Charleston—Smokery.—B. H. Bequest has erected a fish smokery.

Charleston—Lumber Company.—Jno. F. Werner, Walter G. Guyton and T. M. Mordecai have incorporated the Southern Cross Tie & Stave Co. with a capital stock of \$25,000.

Charleston—Steamboat Line.—I. L. Withers and associates will organize a \$50,000 stock company to establish a steamboat line.

Prosperity—Cotton Mill.—The Prosperity Cotton Mill Co., lately noted, will erect its mill next month, to cost \$55,000.

Union—Electric-light Plant.—The city council is considering issuing \$40,000 in bonds for water works and electric-light plant. Address the mayor.

Whitney—Cotton Mill.—The Whitney Manufacturing Co.'s enlargements, already noted, will include an addition after plans by Lockwood, Greene & Co., of Boston.

TENNESSEE.

Bristol—Woodworking Factory.—D. W. Richardson, of Michigan, contemplates locating a woodworking factory.

Clarksville—Foundry.—A special says that it is reported, on what is considered reliable authority, that the Louisville & Nashville Railroad Co. will in a short time locate a foundry and steel plant in Clarksville, dependent it is said, on the success of the Gracy-Woodward Iron Furnace, lately blown in.

Chattanooga—Pulp Mill.—The Chattanooga Pulp & Board Co. is erecting a 35-foot addition, and will put in a seventy-five horse-power engine and twenty-eight paper dryers.

Chattanooga—Stove Foundry.—G. H. Haliday, of Ironton, Ohio, talks of erecting a stove foundry.

Chattanooga—Hay-press Works.—J. W. Carmack, of Dyersburg, Tenn., contemplates engaging in the manufacture of a patent hay press at Chattanooga. Endeavors are now being made to raise \$60,000 for subscriptions to stock.

Elizabethton—Woodenware Factory.—Gurney Bros., of Boston, Mass., have built a woodenware novelties factory.

Fentress County—Oil Wells.—J. W. Righter, of Buffalo, N. Y., representing Riley Allen, of Allentown, N. Y., will drill for oil in Fentress county.

Harriman—Saw Mills, etc.—R. F. Wells, of Harriman; J. R. Miller and J. F. Irwin, of Buffalo, N. Y., have purchased 400 acres of timber lands in Tennessee, and will erect mills for cutting lumber.

Knoxville—Knitting Mill.—W. T. Parham & Sons, of Maryville, Tenn., have definitely decided to build the woolen mill noted last week.

Robbins—Oil Wells.—The Forest Oil Co. will drill wells.

Rockford—Cotton Mill.—Greenlee & McElwee, of Athens, Tenn., have purchased the Rockford Cotton Mills for \$31,500, and will operate same.

St. Elmo—Medicine Factory.—The Chattanooga Medicine Co. has let contract at \$10,000 for a four-story addition 50x100 feet.

Valley Forge—Mineral Lands.—W. B. Allen, superintendent of Tennessee Coal, Iron & Railroad Co., of Birmingham, Ala., has signed contract to buy for development 5000 acres of mineral lands near Valley Forge.

TEXAS.

Beeville—Telephone System.—A company has been organized in Beeville to construct a telephone system from Victoria to Tilden by way of Goliad, Beeville, Normanna, Pettus and Mineral City.

Galveston—Canal Contract.—J. R. Myers, vice-president of the Texas City Improvement Co., has awarded contract to Chas. Clark & Co. for the dredging of a channel 6000 feet long, 150 feet wide and sixteen feet deep.

Galveston—Plumbing, etc.—The Paul Shean Sanitary Plumbing & Manufacturing Co., capital stock \$25,000, for the purpose of manufacturing and selling all kinds of sanitary plumbing, etc., has been incorporated by Paul Shean, William F. Cockle and Paul J. Medley.

Hico—Water Works.—Plans are being prepared for the proposed water works. Address the mayor.

San Antonio—Mercantile.—The R. C. Hansell Co., a mercantile concern with a capital stock of \$10,000, has been incorporated by J. C. Harris, D. E. Lusk and R. C. Hansell.

Weimar—Water Works.—Plans for the proposed water works will be wanted soon. Address the mayor.

VIRGINIA.

Bedford City—Telephone System.—Charles L. Mosby has formed a telephone company.

Claremont—Brick Works.—A Chicago party contemplates developing clay deposits on James R. Hopper's land and erecting brick works.

Falls Church—Water Works.—M. E. Church will build the proposed water works if franchise can be obtained.*

Harrisonburg—Pottery.—Mr. Forrester has leased the Virginia Pottery and will put same in operation.

Mineral City—Gold Mining, etc.—The charter of the Dominion & Mining Co. has been recorded. The capital stock of the company is \$200,000, and the president is Stanley H. G. Stewart, of New York city, and E. Francis Eldridge, of New York, is vice-president. These and Paul J. Schlicht, Albert L. Hall and Joseph W. Connally are the incorporators and directors. This company has purchased the Goodwin gold-mine property, near Mineral City, where it will soon erect its works for the reduction of all kinds of ores, manufacture of fertilizers, etc.

Montvale—Iron Mine.—Oberchain & Hogan are opening an iron mine.

Newport News—Bakery.—G. E. Connell is preparing plans for a brick building, to be three stories high, cost \$5000, have baking ovens, etc.

Newport News—Dry-kiln.—Superintendent Smith, acting for the Newport News Ship Building & Dry Dock Co., has placed contract for the erection of a new brick dry-kiln, to be put up at once, and be 100 feet front and seventy feet deep, with a capacity for drying 200,000 feet of lumber at one time. In addition to the kiln, an apparatus will be put in for the purpose of treating with a chemical process the fire-proof woodwork which will be used in the three government gunboats.

WEST VIRGINIA.

Beverly—Flour Mill.—Isaac Baker & Sons are putting in the roller-process system.

Beverly—Saw Mill and Timber Lands.—M. M. Patterson, of Pennsylvania, has purchased 600 acres of timber lands near Beverly, and is erecting a saw mill thereon.

Charleston—Electric Plant.—The Charleston Street Railway will erect an electric-power plant.

Elk City—Oil Wells, etc.—The Elk City Oil & Gas Co. will develop oil and gas regions, investigate a copper vein, etc.

Fairmont—Water Works.—The Valley River Water Co., capital stock \$100,000, has been incorporated by A. B. Fleming and others.

Fairmont—Coal Mines.—The Nelson Coal & Coke Co., with a capital of \$50,000, has been incorporated by M. L. Hutchinson and others.

Fairmont—Lumber Mill.—M. L. Hutchinson, J. M. Jacobs and others have incorporated the Fairmont Planing Mill Co. with a capital stock of \$50,000.

Fairmont—Water Works.—Charter issued to the Valley River Water Co., with an authorized capital of \$100,000. The incorporators are A. B. Fleming, O. S. McKinney, J. M. Jacobs, Clarence L. Smith, W. T. Ravenscraft, M. A. Joffe, N. D. Helmick, J. H. Brownfield and J. T. Watson, of Fairmont, and John S. Pople, of Palatine.

Martinsburg—Wagon Works.—The Auburn Wagon Co., of Greencastle, Md., will remove its works to Martinsburg; new building 350x70 feet and one 150x70 feet will be built. Fifty or more hands will be employed.

Racine—Coal Mine.—T. L. Foster is prospecting a coal vein varying from thirty inches to five feet.

BURNED.

Austin, Texas.—Frank Hermann & Bros.' machine shops, foundry and cotton gin; loss \$15,000.

Carrollton, Ga.—Dr. W. C. New's sash, door and blind factory; loss \$1000.

Franklin, Tenn.—Parman Bros.' grain mill.

King's Mountain, N. C.—W. O. Ware & Son's flour mills.

Marianna, Fla.—The Chipola Mill Co.'s saw mill; loss \$10,000.

St. Simon's Mills, Ga.—The Hilton-Dodge Lumber Co.'s cypress mill; loss, including lumber, \$150,000.

White Oak, N. C.—Stinson Lumber Co.'s saw mill.

Yazoo City, Miss.—A. M. Payne's cotton gin.

BUILDING NOTES.

Baltimore, Md.—Church.—Contract awarded to Henry S. Ripple for a \$3500 church building.

Baltimore, Md.—Residence.—H. W. Garrett has let contract to Jno. Waters for a \$100,000 residence, after plans by Renwick, Aspinwall & Renwick.

Cocoanut Grove, Fla.—Dwelling.—R. R. McCormick will build a costly dwelling.

Hillsboro, Mo.—Courthouse.—An election will be held on an issuance of \$60,000 in bonds for a new courthouse. Address the county commissioners.

Kansas City, Mo.—Library.—W. A. Kelley can be addressed regarding new library building to cost \$113,000.

Kansas City, Mo.—Office Building.—J. C. Rogers, of Wamego, Kans., will erect a 10-story office building, 68x120 feet, to cost \$150,000.

Milledgeville, Ga.—Dormitory.—The trustees of the Girls' Normal and Industrial School will take preliminary steps to building a \$25,000 dormitory.

Murphy, N. C.—Courthouse.—Bruce & Morgan, of Atlanta, will prepare details and specifications and advertise for bids to rebuild the burned courthouse at Murphy.

Nashville, Tenn.—Exposition Buildings.—The executive committee of the Tennessee Centennial Exposition has awarded the contracts for five of the main buildings at an aggregate cost of \$112,708. The successful bidders were: Commerce Building, Hughes & Rives, \$35,700; Parthenon, Ed. Taunt, \$22,097; Machinery Hall, Thomas Watson, \$19,799; Transportation Building, C. S. Little & Co., \$15,887, and Auditorium, A. B. McCollum, of Chattanooga, \$19,223.

New Orleans, La.—Cottages.—Mrs. E. Mayer has permit for a \$3350 cottage, and Mrs. A. D. Carroll for a \$2500 cottage.

New Orleans, La.—Warehouses.—The Illinois Central Railroad proposes building new warehouses at Southport. Address J. T. Harahan, general manager.

Plattsburg, Mo.—Courthouse.—C. P. Schmidt, of Kansas City, has prepared plans for the proposed courthouse.

Petersburg, Va.—Warehouses.—David Dunlop, George Cameron and Watson & McGill will build tobacco warehouses.

St. Louis, Mo.—Office Building.—Contract awarded to S. M. Carter & Co. for erecting a \$700,000 office building.

St. Louis, Mo.—Implement Works.—The Whitman Agricultural Co. is preparing to erect a plant of ten brick buildings, with steel truss roofs, estimated to cost \$100,000. Contracts for engines, boilers, etc., placed, but not for the electric-light plant. Louis Zeller is architect.

Washington, D. C.—Office Building.—F. L. Loring, of New York, has obtained permit to erect a \$25,000 store and office building at 1327 F street N. W.

Washington, D. C.—University.—Messrs. Van Brunt and Howe, of Boston and Kansas City, have been chosen to act co-ordinately with Mr. W. M. Poindexter, of Washington, D. C., in drawing plans for the American Methodist University building. A committee to take actual charge of the construction of the building, to grant the contracts and to do similar work, was appointed as follows: John E. Herrell, M. G. Emery, A. B. Duvall and S. L. Beller.

Wheeling, W. Va.—Theatre and Hotel.—Henry Schumacher intends to build a theatre and hotel building six stories high, 132x133 feet, and plans for it are now being prepared.

Yoakum, Texas.—Bank Building.—W. Lauder will erect a two-story brick bank building.

RAILROAD CONSTRUCTION

Steam Railways.

Beaumont, Texas.—L. J. Smith, contractor, has begun work on the line from Port Arthur to the Sabine & East Texas road. It will be about five miles long.

Cairo, Miss.—It is stated that a company is to be formed to build the line from Memphis through New Madrid, Portageville and Cairo. Mr. Halliday, of Cairo, is one of those interested.

Cairo, Miss.—Relative to the line from Memphis to Cairo, H. N. Pharr, of Memphis, will probably begin surveying the route in a few weeks.

Charleston, S. C.—It is announced that the South Carolina & Augusta Company is about to begin arrangements for building the line. This company has secured a charter to build between the points named. It would be an extension of the Louisville & Nashville. Prest. M. H. Smith, of the latter, is one of the directors.

Charleston, S. C.—It is reported that work has begun on the Norfolk, Wilmington & Charleston project, of which A. A. Gaddis is a promoter. This line has been surveyed, and it is claimed that the company has secured right of way. Joseph H. Reall, of New York, is also interested.

Elba, Ala.—Business men are organizing a company to build a road from some point on the Plant system to Elba. The distance is about twenty-five miles.

El Paso, Texas.—It is announced by officials of the Texas & Pacific Railway that the reorganization of the White Oak Railroad has been completed, under the name of the El Paso Northern Railway. General Manager Thorne, of the Texas & Pacific, is to be its president. The line will be completed to White Oaks, it is reported.

Fort Smith, Ark.—Prest. E. L. Martin, of the Kansas City, Pittsburg & Gulf, has closed a contract with a committee of citizens for the entrance of the road into the city over a spur from the main line. The spur will be sixteen miles long, and ties have already been purchased for it, and the right of way is being cleared. The city gives the company terminals, and they agree to begin work here forty-eight hours after deeds are delivered.

Harriman, Tenn.—Secretary Winslow, of the Harriman & Northeastern Railroad Co., states that by the plan of reorganization recently adopted, the company has \$50,000 to expend in betterments.

Kansas City, Mo.—The directors of the Kansas City, Pittsburg & Gulf Railway Co. have voted unanimously to increase the capital stock from \$10,000,000 to \$20,000,000. This insures the completion of the road to the Gulf of Mexico. The money represented by the increase in capital stock has already been raised, it is stated. E. L. Martin may be addressed.

Kingwood, W. Va.—It is announced that the West Virginia Northern Company has decided to extend the road from Kingwood to Morgantown, as originally intended. It was the Tunnelton & Kingwood narrow-gauge line, and has been changed to standard-gauge. J. A. Martin is superintendent.

Oakland, Md.—It is announced that the purchasers of the Deer Park & Pittsburg Connecting Railway will organize a company to build it to a connection with the Oakland & Confluence line. The distance is sixteen miles. L. T. Yoder, of Pittsburg, is one of the company.

Rockport, Texas.—It is stated that surveys are about to be made for the Rockport & Northern road from Aransas Pass to Smithville. F. Biekenbach is chief engineer.

Rockport, Texas.—Mr. Walter B. Brooks, Jr., of Baltimore, a director of the Aransas Harbor Terminal Railroad Co. and the Aransas Pass Improvement Co., forms the Manufacturers' Record that bids will be received for constructing the terminal railroad, which is to be about seven miles long and double track. The work will include about three and one-half miles of trestle bridge work, including a steel draw. Bids will also be received for constructing the Rockport & Northern road for its entire distance or for sections. This is to be a single-track line about 145 miles in length. Mr. Brooks's address is 21 South Gay street.

Spartanburg, S. C.—Spartanburg business men may form a company to construct the line projected from Spartanburg to a connection with the Seaboard Air Line at Henrietta, N. C. The distance is about twenty-six miles.

Swainsboro, Ga.—The Stillmore Air Line has been completed from Stillmore to Swainsboro, twelve miles. J. D. Overstreet, at Stillmore, is chief engineer.

Tallahassee, Fla.—It is reported that the Tallahassee & Southeastern Company may begin work on the line from the Georgia boundary to the gulf. J. M. Mays, of Ocala, and George S. Daniels, of Lockport, N. Y., are among those interested.

Waycross, Ga.—The Plant system is laying thirty-one miles of track between Dupont and Waycross with 70-pound steel rail.

Wilmington, N. C.—A rumor is current that the Wilmington, New Berne & Norfolk will be extended from New Berne to a connection with the Norfolk & Southern system. Thos. A. McIntyre is president.

Electric Railways.

Aberdeen, N. C.—It is stated that the electric railroad being built by J. W. Tufts, of Boston, may be extended to Jackson Springs.

Columbia, S. C.—The Columbia electric railway may be extended four miles to Granby, on the Congaree river.

Salem, Va.—Prest. J. W. F. Allemong, of the Salem Improvement Co., is negotiating with the Basic City, Bridgewater & Western Electric Railroad Co. in regard to the building of the proposed electric line between Salem and Blacksburg. It would be twenty-five miles long.

Staunton, Va.—Mr. R. D. Apperson, of the Staunton Street Railway Co., has decided to change the road to a trolley line. It is about five miles long.

Waddy, Ky.—It is reported that a company has been formed to build a road from Waddy to Frankfort.

Wilmington, N. C.—The Wilmington Street Railroad Co. has completed an extension of its trolley line in the suburbs.

Street Railroads.

Scranton, Miss.—The line from Scranton to Pascagoula, to be built by Martin Turnbull, will be but one and a-half miles long. Old rails and second-hand cars will be used. Animal power will be employed.

Machinery, Proposals and Supplies Wanted.

Manufacturers and others in need of machinery of any kind are requested to consult our advertising columns, and if they cannot find just what they wish, if they will send us particulars as to the kind of machinery needed we will make their wants known free of cost, and in this way secure the attention of machinery manufacturers throughout the country. The MANUFACTURERS' RECORD has received during the week the following particulars as to machinery that is wanted.

Bag and Stamping Machinery.—Wenhouse & Son, Atlanta, Ga., want bag and stamping machinery.

Boiler.—Davis Brothers, Asheboro, N. C., want a sixteen or twenty horse-power engine and boiler, second-hand, in good order.

Boilers and Engine.—The Hilton & Dodge Lumber Co., Darien, Ga., will want boilers and engine.

Brick Machinery.—Davis Brothers, Asheboro, N. C., want a brick-mold machine; second-hand will do.

Cotton Machinery.—The Couch-Banks Manufacturing Co., Senola, Ga., wants 15,000 pounds cotton linters per month, such as can't be used in cotton factories, free from cloth and trash; also cotton linters from cottonseed required at oil mills. Please send by mail average sample and lowest cash price.

Cotton Mill.—The Prosperity Cotton Mill Co., Prosperity, S. C., will want bids next month for 92x130-foot cotton-mill building and machinery, such as two 150 horse-power boilers, one 250 horse-power engine, 80-arc electric-light plant, pumping engine, spindles, etc. Address A. H. Kohn, secretary.

Crimping Works.—The New Orleans Roofing and Metal Works, 326 Lafayette street, New Orleans, La., is in the market for power crimping rolls 50x12 1/2 inches, and crimp five V crimps to the inch, with No. 22 gage iron and lighter.

Electric-light Plant.—The Greenville Electric Light Co., S. C. Hamilton, Jr., manager, Greenville, N. C., needs an electric-light plant of thirty-five arc and 400 incandescent lights.

Electric-light Plant.—See "Cotton Mill."

Electric-light Plant.—A. J. Rooks, Somerville, Tenn., wants to correspond with dealers in reference to storage batteries

large enough to light up a good size building with electricity.

Elevator.—The New Orleans Roofing and Metal Works, 1226 Lafayette street, New Orleans, La., will want a belt power freight elevator.

Excelsior Machinery.—Z. Smith, Tennille, Ga., wants prices on excelsior machinery.

Flour Mills.—J. G. L. Simpson, 26 Rodney street, Brooklyn, N. Y., wants sifting and bolting machinery.

Ice Machinery.—A. R. Logie, Charlotte, N. C., will buy ice machinery in three or four months.

Leather.—The Couch-Banks Manufacturing Co., Senola, Ga., is in the market for light-weight scrap and kip leather; will accept anything that will square four to six inches and above. Give lowest prices, stating kind and quality.

Pipe Sewers.—Sealed proposals will be received until January 30 for furnishing pipe and constructing sewers, five and a-half miles long, six to fifteen inches in diameter.

Printing Presses.—Wenhouse & Son, Atlanta, Ga., want printing presses.

Power Machinery for Boat.—M. M. Karnsey, Rutledge, Fla., wants machinery for a boat of eighteen feet length and four feet beam.

Railway Equipment.—The Piedmont Company, Rock Springs, Fla., is in the market for a cheap three-foot-gauge locomotive and about a mile of 16 or 20-pound rails.

Sawing and Splitting Machinery.—C. J. Clifford, Govettown, Ga., wants machinery for sawing and splitting wood for domestic use.

Saw-mill Machinery.—The Hilton & Dodge Lumber Co., Darien, Ga., will want to buy circular saw mill complete.

Standpipe.—M. E. Church, Falls Church, Va., will probably want a standpipe.

Well-drilling.—L. Jones, mayor, Unionville, Mo., will open bids January 10 for price per foot for drilling and casing complete a six-inch, eight-inch or 12-inch well, including everything.

Well Drills.—M. E. Church, Falls Church, Va., will probably want a well drilled about 1000 feet deep.

Woodworking Machinery.—M. F. Wharton, Valley View, Ky., wants a trimmer, six line rules, cut-off saw, lath mill and bolter.

A new catalogue just issued by the Hiles & Jones Co., of Wilmington, Del., contains a series of beautiful photo-engravings of some of the ponderous machines made by this concern. The Hiles & Jones Co. makes tools for working iron and steel plates, bars and structural shapes, boiler, tank and pipe shops, car and locomotive works and other plants where the finest and most perfect products of the machine works are required.

No doubt the reader has often been inconvenienced when desirous of taking a bath, and a ready supply of hot water for the same was not at hand. A ready, convenient and cheap supply of hot water for the above purpose can be obtained by the use of the "Lightning" instantaneous water heater, and a pamphlet describing same and presenting testimonials has just been issued by the makers, the Horix Manufacturing Co., of Cleveland, Ohio.

Iron Markets.

Cincinnati, December 21.

The market during the week has been unsteady and yielding, with a downward tendency, occasioned by cognizance of the largest production and shipment of Lake Superior ore ever known, the continuance of pig-iron manufacture on the largest scale the country has ever experienced, and a natural falling off in consumption of iron incident to the season. The business of the past week has been largely in round lots for scattered future delivery. The small buyers have not figured conspicuously in the trade, though numerous "filling out" small orders for immediate shipment have been booked. The transactions in the main have been worked out separately and independently as to price, as the views of the buyer and seller might be harmonized into a contract figure. The highly patriotic though abrupt message of the President to the Congress has precipitated the solution of the "Monroe doctrine" as an international problem, and the country is greatly stirred in the con-

templation of the momentous consequences.

The message approximates in its character an edict, and the quick patriotic support of the administration emphasizes the seriousness of the situation. The misconception on the part of foreigners of the stability of our government and the solidarity of our people has awakened their distrust in American securities, and already lead to liberal offerings for sale of nearly every class of American stocks and bonds held in England. The probability of increased gold exports and advance of interest rates creates disturbance at money centres, and will interfere with legitimate financial transactions in the usual conduct of easy regular monetary trades; but there is a well-grounded belief that wise counsels will prevail and a diplomatic adjustment of the differences avert open hostilities.

Stocks of iron in the hands of consumers are not large, and at prices obtainable an increased business is certain the approaching week, and the sales of pig iron in the closing ten days of the year will aggregate a large tonnage. The advance in ores, fuel and labor has increased very materially the cost of pig iron, and thoughtful buyers realize that iron is cheap at figures prevailing.

We quote cash f. o. b. cars Cincinnati:

Southern coke No. 1 foundry	\$12 50	\$13 00
Southern coke No. 2 foundry	12 25	12 75
No. 1 soft	12 50	13 00
Lake Superior coke No. 1	14 00	15 00
Lake Superior coke No. 2	13 50	14 50
Hanging Rock charcoal No. 1	16 00	17 00
Tennessee charcoal No. 1	13 50	14 00
Jackson county silvery No. 1	14 00	15 00
Southern coke, gray forge	12 00	12 50
Southern coke, mottled	11 75	12 25
Standard Alabama car-wheel	15 75	16 25
Tennessee car-wheel	14 50	15 00
Lake Sup. car-wheel & malle	16 50	17 50

Buffalo, December 21.

No. 1 foundry strong coke iron	—	\$14 50
Lake Superior ore	—	14 00
No. 2 foundry strong coke iron	—	14 00
Lake Superior ore	—	14 00
Ohio strong softener No. 1	\$16 25	16 75
Ohio strong softener No. 2	15 25	15 75
Jackson county silvery No. 1	16 25	17 00
Southern soft No. 1	15 75	15 90
Southern soft No. 2	14 00	15 50
Hanging Rock charcoal	—	18 25
Lake Superior charcoal	—	16 75

St. Louis, December 21.

We quote for cash f. o. b. St. Louis:

Southern coke No. 1	\$13 50	\$13 75
Southern coke No. 2	13 25	13 50
Southern coke No. 3	13 00	13 25
Southern gray forge	13 00	13 25
Southern charcoal No. 1	14 50	15 00
Ohio softeners	16 00	17 00
Lake Superior car-wheel	17 00	17 50
Southern car-wheel	16 50	17 50
Genuine Connellsville coke	—	5 40
West Virginia coke	—	5 00

Chicago, December 21.

Aside from the dullness incident to the near approach of the Christmas holidays, the market is not unusually quiet. It is true that inquiries of more or less magnitude are now under consideration, but it is conceded by most dealers that buyers are only feeling the market for next year's deliveries. In fact, their contracts will carry them perhaps two months into the new year, and they are in good condition to "stand off" a little while longer. For grades of Southern iron, most in demand in this section, a strong stand has been made during the past week to maintain the schedule established some months ago, but without much success. There are strong indications that the lower grades have gone off nearly \$1 per ton, and naturally the higher grades have suffered in sympathy. This weakness may be only temporary, for the fact still remains very much in evidence that consumers must come into the market early in the year for large quantities of pig metal.

No large orders are being placed for local coke irons, business being confined almost entirely to small lots. It is learned that a recent large inquiry developed weakness all along the line.

It is reported that the Bar Iron Association, in session this week, decided on a further reduction in prices.

We quote as follows f. o. b. cars Chicago:

Lake Superior coke No. 1 fdy.	\$15 00	\$15 50
Lake Superior coke No. 2 fdy.	14 00	14 50
Lake Sup. charcoal Nos. 1 to 6	16 00	—
Ohio Scotch No. 1	15 50	16 00
Jackson Co., O., silvery No. 1	14 50	15 50
Alabama silvery No. 1	15 00	15 50
Spathite	14 50	15 00
Southern coke No. 1 fdy.	14 25	14 50
Southern coke No. 2	13 85	14 10
Southern coke No. 3	13 60	—
Southern coke No. 1 S.	14 10	14 35
Southern coke No. 2 S.	13 60	13 85
Malle	14 50	15 00

New York, December 21.

There is no change from the apathy hitherto noted in the iron trade. Buyers are taking their iron on old contracts, and, where necessary, buying carload and 50 and 100-ton lots to sort up mixtures. The very general talk is that liberal contracts will be placed early in the new year. But the hand-to-mouth policy of buying will likely prevail while consumers think the market is going their way.

The war scare is taken seriously in some quarters, and questions are heard as to how it will affect iron; but by business men generally it is thought to be grand stand play. If it results in liberal orders for gunboats and fortifications it is about all the iron trade will get out of it. Meanwhile American securities come back in volume and gold goes abroad to take their place.

We quote for cash f. o. b. docks New York:

No. 1 X standard Southern	\$14 00	\$14 25
No. 1 X choice Virginia, such as Shenandoah	14 00	14 25
No. 2 X Alabama or Virginia	13 50	13 75
No. 1 soft Ala. or Virginia	13 75	14 00
No. 1 X lake ore coke iron	16 25	16 50
No. 2 X lake ore coke iron	16 75	17 00
Lake Superior charcoal	17 50	18 00

Philadelphia, December 21.

We take pleasure in reporting a nice run of small orders this week calling for quick delivery, and judge from the general tenor of our correspondence that the consumers are carrying very light stocks and will necessarily have to place orders shortly after the turn of the new year. Several inquiries have been made and deals are now pending for round lots of coke iron. Some of the shrewdest buyers think it is a good time to make contracts.

We quote for cash f. o. b. Philadelphia:

No. 1 X standard Alabama	\$14 00	\$14 25
No. 2 X standard Alabama	13 50	13 75
No. 1 X standard Virginia	14 00	14 25
No. 2 X standard Virginia	13 50	13 75
No. 1 X Alabama or Virginia	13 75	14 00
No. 1 X lake ore iron	16 25	16 50
No. 2 X lake ore iron	15 75	16 00
Lake Superior charcoal	17 50	18 00
Standard Georgia charcoal	17 50	18 00

ROGERS, BROWN & CO.

The Manufacturers' Record, edited by Mr. R. H. Edmonds, of Baltimore, is a marvel. In its line it stands at the head. No other journal has done for the development of the industries of the South what the Manufacturers' Record has, and we cheerfully accord it the credit due. Our readers will be interested in an interview with our hustling Col. Machen, president of the Old Dominion Construction Co., now building the C. & W. Railroad, given in the Manufacturers' Record last week.—The Harrisonburg (Va.) State Republican.

If you want to reach the possible land buyers and investors in the North and West who are thinking of locating in the South, advertise in the *Southern States* magazine, published by the Manufacturers' Record Publishing Co., Baltimore, Md.

Clerical Orders on the Pennsylvania Railroad.

The Pennsylvania Railroad Co. announces that clerical orders for the year 1896 will be issued to ordained ministers of the Gospel located on its system east of Pittsburgh and Erie, inclusive, on the same conditions as prevail at present. Clergymen who desire to avail themselves of this privilege should make application to the nearest ticket office of the Pennsylvania Railroad, so that the orders may be issued before the close of the present year.

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ATLANTA EXPOSITION SUPPLEMENT:

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Pullman Compartment Car Through to the "Golden Gate" via Pennsylvania Railroad.

But few years have passed since the idea of running a train through to the Pacific coast, without change of cars, was regarded as impracticable and improbable. That this could be done, and in the very best manner, too, was demonstrated by the Pennsylvania Railroad Co. with its personally-conducted Golden Gate tours; but not satisfied to let the matter rest here, that company has decided to run a through Pullman compartment car in connection with this season's tours to the Pacific coast, leaving New York February 12 and March 11, 1896.

The car, which will be the very best that the Pullman Company can supply, will contain nine enclosed compartments—two drawing-rooms and seven state-rooms—and will be attached to the special train at Jersey City and run through to San Diego, Cal., on the first tour, and San Francisco on the second.

This will be the first car of its kind to be run on a transcontinental train, and that it will be thoroughly appreciated by participants in the tours is evidenced by the fact that already several of the compartments have been reserved.

Application for space or itineraries giving all information should be made to Tourist Agent, 1196 Broadway, New York, or Room 411, Broad Street Station, Philadelphia.

ATLANTA EXPOSITION SUPPLEMENT.

EXHIBITORS AT ATLANTA.

Interesting Facts About Machinery Displays at the Exposition.

[Special Cor. Manufacturers' Record.]
Atlanta, December 21.

The Hyatt Roller Bearing Co., of New York, shows in the Machinery Building the new flexible roller bearing which it manufactures. Past experience with roller bearings has been rather unsatisfactory. They have been found to cut the shaft and bind when out of line. To avoid these difficulties a flexible twisted steel tube has been made in place of the solid roll, and as a result any twist in the shaft is taken up, besides easing it when sudden strains are put on. It is well known that when in good condition the ordinary roller bearing showed only about one-third the friction of a plain bearing, and as these elastic rollers are always in good condition equal results can be expected from them. The boxes consist of sheet steel, in which is enclosed the flexible rollers, at each end being a head to retain them in place. In addition, a skeleton frame is put in with the rollers so as to engage half of them and keep them in place. The box is of the same size as the ordinary cast-iron surface bearing and can be put in its place in a hanger or elsewhere. Another feature of this bearing is that the slight elasticity of the rollers is sufficient to allow the actual point of bearing to be taken by three rollers instead of being only on one or two, as with rigid rollers, or on only one line, as in a plain surface bearing. Consequently their wear is longer.

The Mason Machine Works, of Taunton, Mass., has in Machinery Hall an extensive exhibit of the various machines which it manufactures. This company's product is so well known in the textile-manufacturing world that no extended description of the machines is needful, but the following data concerning those shown here may be interesting:

The revolving flat top card shown has a 50-inch cylinder, forty inches wide. The doffer is twenty-four by forty inches, with 104 flats one and three-eighths inches wide, forty being working at one time. All of the clothing is made by the American Card Clothing Co., of Providence, R. I. Among the various interesting features of this card may be mentioned the following: The cylinder pedestal boxes are all self-oiling, with a chain oiler. The oil chamber holds about two quarts of oil, and is pumped up by the chain and flows along the bushing and down through two ducts back to the chamber. No oil can escape to the cylinder heads, and thus get on the clothing of either cylinder or flats. These boxes will run six months with one oiling. The doffer is nine and three-eighths inches diameter, clothed with metallic saw-tooth strip, and is grooved perfectly true after being wound. It has shrouded ends, with detachable caps, and can be lifted out and examined without disturbing any of the adjustments. The licker-in screens and knives, of which there are two, are so arranged that after once being set no further attention need be paid to them, as they adjust in and out with the licker-in. The feed-plate is of the disk or shell-feed type, with easy means of adjustment. The screens are all adjusted from the outside, and can be so set that a minimum of waste or flyings is produced.

The flat grinding apparatus is a patented arrangement devised by Jno. T. Meats, the superintendent of the Mason Machine Works.

The flats are not only ground from their real working surface on the flat end, but are ground in the same position as when working on the flexible bend. In this way, instead of grinding the flat on top of the card, they are ground immediately over the licker-in, with the wire down. If any deflection in the flat does exist, instead of multiplying the deflection twice, this method of grinding will remove it. The invention consists of a bracket for carrying the grinding rolls, and also the shoe for keeping the flats in proper position for grinding.

The comb has a double-scored pulley, and runs without noise and at a very high speed. The side shaft is arranged with a switch-out gear at both the doffer ends, and also at the draft-gear end. The coiler is built so that the calender rolls can be oiled without breaking the sliver, and is arranged so that both 10 and 12-inch cans may be used. All the casings and pieces are of sheet steel, and adjusting screws are arranged so that a turn of one notch is equivalent to 1-1000th of an inch. The bends, flats, cylinders and doffers are all tested to 1-1000th part of an inch, and any parts not coming up to this standard are rejected.

The double-feed card has similar details as regards the cylinder, doffer and licker-in. The flats are thirty-two in number, and the total amount of actual wire surface is the same as in the revolving flat card. With this card two laps are used, and also two feed-plates and two licker-ins. The lap is fed in at one-half the speed usually adopted where only one lap is used. The cylinders, doffers and licker-ins on this card (as well as on the revolving flat card) are cast solid, with the arms in, thus insuring a strong cylinder.

Two drawing-frames are shown, both in operation. One is an electrical stop-motion frame. It is provided with leather-covered top rolls, the front rolls being of shell pattern. The other frame is a mechanical stop-motion, fitted with metallic drawing rolls built by the Metallic Drawing Roll Co., of Indian Orchard, Mass.

Two spinning-frames are shown—one of 204 spindles, three-inch gage, seven-inch traverse, two-inch rings, solid top rollers, short box steel rollers, traveler cleaners on rings, Speakman's lever screws, thread-board lifters, steel roving traverse rod with brass trumpets, double creels, and spinning No. 21 warp yarn. The "Draper No. 2" spindle is used, with the Woodmancy oiling device. The separator is the "Rhoades-Chandler" perforated blades, especially adapted to high-speed spindles. One filling frame of two-and-three-quarters-inch gage, six-and-one-quarter-inch traverse, one-and-three-eighths-inch rings, spinning No. 14 filling yarn.

One mule is shown, of one-and-three-quarters-inch gage, for hosiery yarns. This is a new design, a rope-driven carriage being used. In addition to the ropes for carriage driving, in place of chains used on previous mules, it has also a direct wind from the quadrant to the cylinder (as well as other motions which adapt it to the practice of English mule spinners), retaining the patent self-adjusting bolster, covered step, cylinder-shaft ball bearings and other valuable

features of the chain mule, by which a higher spindle speed is attained with low consumption of power.

Six looms are shown. One high-speed print-cloth loom, weaving 28-inch 64x64 seven-yard goods, warp furnished by Nocke Mills, Fitchburg. This loom is running steadily at from 225 to 240 picks per minute, according to the load on the engine; one heavy sheeting loom, weaving 36-inch sheetings, running at 195 picks, and one heavy twill loom, weaving 30-inch drills, running at 185 picks. The Mason standard loom is well known, and need not be described in detail.

There are shown also one six-box ging-ham loom, running at 160 picks per minute on a six-box pattern warp furnished by Kincaid Manufacturing Co., Griffin, Ga.; one Standard loom, fitted with a Mason dobby for twenty harnesses, and one two-box handkerchief loom, arranged to weave up to eight harnesses.

All of this machinery has been in continual operation during the exposition. Mr. Thomas G. Cox, selling agent of the Mason Machine Works, has been in charge, with Mr. G. F. Foster as assistant. The spinners and weavers were mill help from the mills in Atlanta. The Mason Machine Works has not heretofore had much machinery running in the Southern States, and it is worthy of note that local help handled this machinery as well on the first day as if they had been accustomed to it always.

Tweedales & Smalley, of Castleton, near Manchester, England, represented in this country by H. G. McKerrow & Co., of Boston, have in Machinery Hall several improved machines, among them speed frames and a carding engine.

This latter has several new points, particularly in the bend, and a means of slowing the doffer. The former consists of an irregularly-shaped segment of a ring, with two horizontal, two vertical and two angular faces. One of the horizontal faces rests, at five points, upon the heads of screws, upon each of which is fitted a circular nut. The upper horizontal face forms the flat course, and the whole bend is accurately machined and prepared. The fixed bend is grooved at the top, for the reception of the flexible bend. The front of the fixed bend is slotted, to enable access to be obtained to each of the nuts. In the centre of the flexible bend, at points opposite the setting points, holes are provided, through which screws are passed, these being screwed into a loose piece. This bears on the underside of the fixed bend, special care being taken to ensure its making a solid bed free from twist. The front part is forked, and passes over a screw and over the top of the nut. The groove in the fixed bend is wide enough to allow the bend to enter easily, but not loosely. The screw has twenty threads to the inch, and the nut is graduated on its edge with fifty equal divisions, so that the rotation of one of these is equal to a movement of the screw vertically a distance of one-thousandth of an inch.

The most novel device after the flexible bend is a slow motion for the doffer and for grinding. This is ingenious, and is arranged so that it obviates the necessity for the ordinary barrow-wheel arrangement, the pinion being always in gear. Mounted on the pinion stud are two pulleys adjoining the pinion. The inner pulley has a taper brake surface turned on it, with which a brake connected to the strap-fork can engage. In

the web of the inner pulley is a bearing for a short spindle, carrying on each end a pinion, one of which engages with a pinion on the boss of the pulley and the other with a carrier wheel engaging with the barrow-wheel. In ordinary work the strap is partially on each pulley, so that they and the internal wheels all revolve together and drive the doffer full speed. When the strap is pushed entirely onto the outer pulley and the inner pulley is left free, the latter and the wheels revolve in the opposite direction, but are not powerful enough to turn the doffer, so that the latter is stopped. By pushing the belt over still further the brake is brought into contact with the inner pulley, holding it fast, and thus causing the wheels to act as a train and drive the doffer at a slow speed. This can also be utilized for grinding purposes.

The company shows here, in addition, its new speed frames. These embrace several improvements, among them Tweedales's motion, which has been somewhat simplified. In this the bosses are extended, so that when the wheels are in position they practically form a sleeve on the spindle, thus giving them a greater support and diminishing the risk of working loose. This is a minor improvement, but one which adds to the general efficiency of the machine. The cap bars are of a pattern perfected by the makers, and are fixed upon fingers fastened in brackets secured to a round rod by a pin half sunk in the rod. The spindle and bobbin rails are milled accurately on their top faces, so that the collars and footstops can be at once fixed in their true position.

Their electric stop-motion drawing-frame also presents some new features. The brackets for carrying the roller stands, calender rollers, back plate and feed-roller bearings are cast in one piece, and the seatings for the front roller bracket and calender roller bearing are in each bracket milled out by machine at the same time, so the distance between the centres is permanent. The driving arrangements and other parts of the machine are excellently designed. The fast pulley is fixed to the front roller shaft and compounded with a small pinion, which communicates the motion to the coiler and calender roller shafts directly from the fast pulley by the intervention of a train of wheels. The teeth of the pinion correspond in number to the number of sixteenths of an inch in the diameter of the front roller, the idea being to establish a uniform velocity ratio between the front roller and the calender and coiler shafts. The pinion gears with a change wheel which is of a large size, so that a small increase or decrease in the velocity of the driven parts can be made to suit the sliver being drawn, no matter what its weight, thus equalizing the tension. Then by changing this wheel the speed of the calender rollers and coiler is altered equally, so that the velocity ratio between these two parts is always the same. This means that there is no stretching of the sliver or kinking up during the coiling.

The machine is provided throughout with electric stop motion, the stopping points being, first, the calender rollers on the failure of an end; second, the feed rollers under similar circumstances; third, the drawing roller, in the event of a lap, and fourth, the coiler plate when a can is too full. The stopping of the machine is effected by means of a divided clutch motion. The fixed and movable

parts are formed on their contiguous faces like a scroll, so that when the loose half is prevented from rotating, the revolution of the fixed half necessarily slides it along the shaft. On the loose half a projecting shoulder is formed, which, so long as the hinged bracket controlled by the magnet is held up, can rotate with the clutch. When the circuit is closed, however, this bracket is drawn down, and a projecting face on it comes in contact with the projection on the clutch, thus arresting its movement.

Lane & Bodley Co., of Cincinnati, Ohio, have in Machinery Hall one of their 400 horse-power Corliss-type engines driving a General Electric Co.'s monocyclus dynamo. This is one of the largest engines on the grounds. It has a 22-inch cylinder, 48-inch stroke and makes eighty revolutions per minute. The flywheel is eighteen feet in diameter, with 37-inch face. It is what the company calls their "Columbian" design, the construction being for specially heavy duty. The governor is very sensitive and keeps the engine under perfect control, its operation at all times being smooth, a very necessary feature, particularly when driving electric apparatus. It is in operation both night and day, and much interest has been shown in the indicator cards which have been taken from it.

The Buckeye Engine Co., of Salem, Ohio, has in the Machinery Hall one of its medium-speed cross-compound engines. The diameter of the high-pressure cylinder is fourteen and one-quarter inches, the low pressure twenty-eight and one-half, with a 24-inch stroke, running at 150 revolutions per minute. The engine is driving the power generator, which runs all the motors and also a Fort Wayne machine. These engines are well known and a description of their mechanical features is unnecessary. As is shown by its work here, the engine exhibited is smooth and noiseless in its action and operates without appreciable variations in its speed.

Aquilla, Rich & Co., of New York, have in the Manufactures and Liberal Arts Building a display of their fireproof oil, paints and liquids made under the Martin process. The display, while not an extensive one, is comprehensive, showing the different colors used and providing information as to the fireproof qualities of the materials.

One of the most interesting and certainly most comprehensive exhibits in the Manufactures and Liberal Arts Building is that of Flint, Eddy & Co., of New York, who are probably the largest importing and exporting merchants in this country. The display embraces products from Brazil, Hawaii, Argentine Republic, Australia, Uruguay, Paraguay, Chili, Peru, Ecuador, Bolivia, Colombia, Venezuela, many of the Central American States, from Southern Africa, Mexico, European countries, East and West Indies, Fiji Islands, China and Japan. Among the various features of this interesting exhibit are two large logs of mahogany from San Domingo and from the southern coast of Cuba. There is also shown camphor wood from China and various woods from other countries, onyx and other stones and agricultural products of various countries, crude drugs, rubber, cork, coffee, gums and a large number of other articles. The exhibit is thoroughly instructive both in its arrangement and the great variety of products shown.

The Ball Engine Co., of Erie, Pa., has in Machinery Hall one of its horizontal engines, with 13-inch steam cylinder and

15-inch stroke, running 300 revolutions and driving a Brush dynamo.

The Morse Drill & Machine Co., of New Bedford, Mass., shows in Machinery Hall a handsome case containing a large variety of drills, reamers, countersinks, milling cutters, taps, dies and other tools of this character. The tools are all highly finished and are in every size from the smallest, such as is used for jewelry work, up to the largest for heavy machinery.

The Carl Electric Motor & Dynamo Co., of Cincinnati, Ohio, has in the Machinery Hall a 50-kilowatt dynamo, which supplies light to the miniature world's fair exhibited on the grounds. The company also has in another part of the building a small slow-speed, direct-connected motor driving a Miehle printing-press. The dynamo is operated by a Lane & Bodley vertical cross-compound, direct-connected engine, running 275 revolutions per minute. The notable feature of these dynamos and motors is their slow speed, suiting them for connection without the use of intermediate gearing.

The Post Electric Co., of Cincinnati, Ohio, has in the northern end of the Electricity Building a large display of its various electrical supplies. On one side is shown a pyramid of electric incandescent lamps of various colors and styles of globes, while in the back of the exhibit there are a series of panels showing electric push-buttons, interior conduits and insulation, trolley-wire fixtures, electric bells, electric headlights, fuse boxes, switches, linemen's tools and also tools for interior fittings. Around the front of the exhibit there has been placed a row of "American Flag" dry battery cells of 10-25 amperes.

The American Electric Telephone Co., of Kokomo, Ind., has an interesting exhibit in the Electricity Building showing its various styles of long-distance and office telephones. The telephone boxes consist of the usual bell, with the transmitter and receiver. When desired a flexible arm is attached to the receiver, so that it may be moved to any point for the convenience of the operator. The company shows also one of its small exchange racks and several devices for increasing sound. This telephone is being widely used, especially from residences to places of business, and in small towns and cities. It is cheap and gives satisfactory results.

The American Bell Telephone Co. has in the Electricity Building an extensive display of its various styles of telephones, including a series of transmitters and devices for rendering sounds more distinct. It includes also maps, showing the method of wiring in cities, and in one end shows a telephone exchange in operation. This is the central exchange of the exposition. The exhibit is both an interesting and instructive one, and shows the wide use of the Bell telephone in all parts of the world.

John T. Bailey & Co., of Philadelphia, have in the Manufactures and Liberal Arts Building an extensive display of their bag, rope and twine manufactures. These are artistically arranged, showing all of the leading varieties. The front of the exhibit has a rail made of balls of twine, while the posts on each side of the entrance are made of balls of twine on top of which are two very large balls of the same material.

The Fairbanks Company, of Baltimore, Md., has in the Manufactures and Liberal Arts Building a handsome display of the different styles and sizes of scales

manufactured by it, comprising grocers' scales, meat scales, platform scales and the ordinary scales such as are used for boxes, barrels and other heavy weights; beam scales, cotton scales and many other kinds.

The Capewell Horse Nail Co., of Hartford, Conn., has in the Manufactures and Liberal Arts Building an interesting display of its Capewell horse nail. These are cold-forged, highly finished and stiff driving nails, easily clinched. They are made from Norwegian or Swedish iron. The company also shows a new corrugated nail which does not require clinching, having on each side small corrugations to hold it in the horse's hoof. The material in this nail has a high tensile strength and at the same time is very ductile. The exhibit received the highest award, as it also did at Chicago and San Francisco.

Houston, Stanwood & Gamble, of Cincinnati, have in Machinery Hall one of their cross-compound non-condensing throttling engines. The high-pressure cylinder is fifteen inches in diameter and the low pressure twenty-two inches, with a 22-inch stroke, the flywheel being twelve feet in diameter, with a 25-inch face. The engine is running 100 to 115 revolutions per minute. The engine is driving an arc-light dynamo, made by the Excelsior Electric Co., of New York.

One of the most interesting and instructive exhibits in the line of knitting machinery in Machinery Hall is that of the Providence Knitting Machine Co., of Providence, R. I. These machines, the Victor automatic seamless, are in operation, showing both the method of knitting and of looping and closing at the toe.

The comparative simplicity of construction of this machine and the ease with which an unskilled hand can operate it are features which the manufacturers call particular attention to, as well as the high rate of speed at which it runs. The ordinary latch needles are used, costing, it is stated, from \$10 to \$12 per thousand. The breakage is said to be small. Another feature of the machine is that to make a change of gage all that is necessary is to change the needle cylinder from a greater to a less number or vice versa.

The machine is provided with a reinforcing device, positive in action. The yarn used is the same as for the other work. The knitting head is simply constructed, the needle cylinder being plain and substantial, no skeleton or outside cylinder being required. The needle slots are not cut deeper at the bottom than the top, as the needles are raised out of action with the cam instead of being pressed back into the needle cylinder. In knitting ladies' hose the leg is shaped by tightening the stitch at the ankle and foot and loosening it in the calf and top of the leg. The cylinders are removable and the stitches are run directly into the needles instead of into grooved points, and pulled from these to the needles. The machine is excellently constructed, all of its parts being well finished and strongly made.

The A. W. Harris Co., of Providence, R. I., and Charlotte, N. C., shows in Machinery Hall a large case containing bottles of its various grades of lubricating oil for both light and heavy-running machinery. This oil is used by the majority of the engines and machines in Machinery Hall. The company also manufactures a paste which is largely used for a certain class of work.

Hanne Bros., of Jacksonville, Fla., show in the Electricity Building a new style of wire reel for carrying all kinds of

line wire both for erecting and to keep stock. The reel is so arranged that by drawing the two axes apart it is reduced in diameter to permit it to be placed inside the wire. When the axes are again pressed together the circumference of the reel is increased, clamping the wire tightly. The arrangement is a very ingenious one.

The Chicago Pneumatic Drill Co. shows in the Machinery Hall some of its pneumatic tools for both iron and stonework. The tool is operated by compressed air furnished by a Rand Drill Co. air compressor. The pressure averages sixty pounds per square inch. The tool consists of an iron handle, having a cylinder attached to it, in the end of which is set the chisel used in the work. Air passes through the handle to an automatic valve, the amount of air being controlled by a small lever in the handle. When the air passes through the valve into the cylinder it acts on a steel piston, forcing it up and down rapidly, the stroke downward being against the head of the chisel, thus giving the blow. There are four sizes of the tool made—one with a two-inch stroke, giving about 2000 blows per minute; another with one and one-quarter-inch stroke, giving 2400 blows per minute; a third with one-inch stroke, giving 3300 blows, and smaller sizes for very fine work, with three-eighths-inch stroke, giving 6500 blows per minute. The rapidity with which either stone or iron can be cut with the chisel is astonishing, and easily holds out the company's claim that one tool can perform the work of three men in any given time. Besides, it can be manipulated as readily as a chisel and the force of the blow graduated to the work quite as well as when using a hammer. It is in every sense a labor-saving tool and a thoroughly good one at that.

In the Manufactures and Liberal Arts Building the Southern Terra-Cotta Works, of Atlanta, has an artistic display of its products. This company supplied the staff which was used on the Auditorium and the other buildings in the exposition. The display has a handsomely-ornamented front, and inside are numerous figures in terra-cotta, as well as vases artistically decorated, some handsome panels, a fireplace and other works of art. This display is particularly creditable, as it shows not only skillful work, but also how well the Southern clays and other material are adapted to manufactures of this character.

The Johnson Co., of Lorain, Ohio, and Johnstown, Pa., show in the Transportation Building some samples of their girder rails and switches for electric-car tracks. They show also some lighter rails and a new car truck.

Brennan & Co.'s Southwestern Agricultural Works, of Louisville, Ky., have in the Transportation Building a display of several agricultural machines, among them an upright and a horizontal cane mill, a power fodder cutter, grass seeders and other implements for similar work.

The Marlin Firearms Co., of New Haven, Conn., shows a small exhibit in the Manufactures and Liberal Arts Building in which has been placed various models of the rifles manufactured. These include both the latest model and some of the earlier forms, many of them being beautifully designed and the metal parts finished in gold and silver. In some the stocks are of curly maple and others of fine curly walnut. Sectional parts of a number of guns are shown, and also cartridges, revolvers and various gun tools. In the 22-rim-fire gun, model of 1891-92, the 22-short, the 22-long and

the 22-rifle cartridges are all used in the same gun without any change. By this means it is able to give the same as would be required in two guns. In the 32-calibre rim-fire gun it can shoot the 32-short or 32-long rifle rim-fire by simply changing the fire-pin, an extra pin accompanying each gun, the gun shooting a 32-short Colt (same as the revolver) and a 32-long-centre fire. In the centre-fire guns, 1893-94 model, a peculiar system of safety is made by cutting the fire-pin in half. The short end of the fire-pin is raised in line with the balance of the fire-pin only when the locking bolt has gone clear into position in the breach-bolt and firmly locked it. Until this has been accomplished by the lever being closed in position it is impossible to explode a cartridge; therefore, if at any time, under excitement, a person only partially closes the lever there is no way by which they can explode the cartridge in the gun. If at any time in having taken the gun apart, in attempting to assemble and accidentally leaving out the locking bolt, the gun cannot be discharged. One advantage that these guns have is that the breach throws out the cartridge through the side, so that the ejected shells or smoke do not interfere in any way with the sight. Further, in case of a defective cartridge, or by any premature explosion, no powder can be thrown in the user's face; and rain or snow, or when the gun is being used in the woods, where pieces of bark or any foreign substance is dropping, they cannot get into the mechanism of the gun. The principal point of this gun is strength and simplicity, few pieces being used. The 1893 model is 25-36, 32-40 and 38-55. In this same model is the 30-30 smokeless, the barrel, receiver and breach of this gun being made of government nickel-steel. The 1894 model consists of 25-20, 32-20, 38-40 and 44-40. The company's "take-down" gun is excellently made, the parts being arranged so that the barrel can readily be unscrewed from the stock, another feature being that in each model several different barrels may be used on the same stock. When put together the barrel is as firm as in the regular guns, all wear being taken up on a side cam.

The American Card-Clothing Co., of Worcester, Mass., has in the western end of Machinery Hall an exhibit of some of its machines and also of its well-known "Flexifort" clothing for woolen and cotton cards. This material is well known to the trade. Tests which have been made to ascertain its stretch, using pieces twelve inches long and two inches wide, set with No. 32 wire, 700 pounds tension, show a stretch of 0.4 inch and breaking strain of 750 pounds. This is considerably above second-cut leather, which showed under similar conditions a stretch of 2.59 inches and broke at 500 pounds. The "Flexifort" foundations are adapted for revolving flat and all other kinds of cards on account of the large cylinders and close setting required. They have been found under careful tests to stretch less than one-third as much as a foundation commonly used for revolving flat-card clothing. It is stated that if these foundations are properly drawn on, they never require redrawing. They insure the teeth of the clothing being ground and worked at the same angle. These foundations are made with natural, carbonized or vulcanized faces, four, five or six-ply cotton, double or single cover woolen and felt-faced cloths.

The Dodge Manufacturing Co., of Mishawaka, Ind., has in the Machinery Hall an interesting exhibit which includes a model of the plant operated by the Dodge system of rope transmission. This system is well known and is shown

on a large scale elsewhere in the building, where the large Frick engine is connected by it with the two main lines of shafting in the building, there being two drives on the same flywheel, each being with a separate tightener. The company shows also a Dodge patent split friction-clutch for pulleys and couplings. There are also shown capillary bearings. These are composed of three parts. First, a lower box, which acts as a receiver for oil, the top and bottom of the bearing being set in this box first referred to. In the centre of this bearing there is cut a square opening, and in this is set a small perforated block of maple held up against the shaft with a spring. This feeds the oil to the shaft by capillary attraction through the openings in the block. In babbitting this box the company pours the babbit in on a small shaft; the box is then bored out to the required size so as to be perfectly true. There is shown also a neat improvement in countershaft hanger shifters. This arrangement is put on the web and can be moved up or down and securely held in any position. Another feature in shaft hangers is one in which an opening is left in the casting on the side of the frame as in a single brace hanger. The frame is provided with taper cones cast on the sides of the web near the gap, and a brace, composed of two parts, is bolted on the frame so as to embrace these cones, thereby drawing to a tight fit and transforming the hanger into a double-brace pattern, with all the conveniences of a single-brace design. The base of these hangers is ground perfectly true and thus form a fit against the hanger cleat, or stringer, which is an important item in erecting shafting.

The Daugherty Typewriter Co., of Pittsburg, Pa., has in the Manufactures and Liberal Arts Building a small booth in which is shown the visible typewriter which it is introducing. The need for a machine of this kind is evident. In the usual makes of typewriters the letters are struck beneath the platen, or roll, and it is necessary to lift this in order to see them, either to follow the sentence or correct a possible mistake. In this visible machine the paper is struck by the letter in full view of the operator and all the lines can be seen at the same time. The advantage of such an arrangement is so evident to both the professional and occasional operator that it is unnecessary to speak further of it. The construction of this machine is quite simple. There are thirty-eight keys and one shift key on each side, besides the spacing bar. More keys can be added where desired. The key terminates in a substantial bar, which runs forward to the letter rod, engaging it with an open action. By pressing down the key the letter is thrown forward, striking between guides against the ribbon and thus transferring the letter to paper. When the key is released the letter rod falls back to its original position over the key rods. This exposes the letters at all times, and to clean them it is only necessary to pass the brush over the faces of the type before the operator. By undoing two screws the entire keyboard and letters can be lifted from the machine, and the roller and other parts are as simply arranged. Every part is made amply strong and yet without undue weight. This is shown in the strength of the key bars, which are able to support a heavy weight or blow without bending or disturbing the alignment of the type.

The Miller Safe and Iron Works, of Baltimore, Md., has a display of various sizes and types of the burglar-proof safes in the Manufactures and Liberal Arts Building. There is shown a handsome and very convenient jewel cabinet, weighing about

twenty-five pounds, and small house safes for the safety of table silverware. There is shown also a small burglar-proof chest for mercantile purposes, for use inside of fire-proof safes, and a number of large safes are also shown, both with single and double doors. It has long been recognized in modern burglar-proof safe and vault construction that the point inviting most frequent attack on the part of burglars has been the spindles and spindle-holes of the locks and of the handle for throwing boltwork. No matter how well the spindles may be fitted it is possible that nitro-glycerine or other explosives, operated by an expert, may be forced through, or sufficiently far into interior parts of door, as to explode and open the door or enable it to be easily opened. The company has a device, applicable to both new and old work, that does away with all holes in the door and (operating in connection with the time lock) works with certainty and accuracy. This new form of time lock for vaults is extremely interesting and ingenious. The principle of the lock depends on gravity. The bolts are thrown by means of a weight capable of exerting power five times more than is absolutely necessary to shoot them. The closing of the doors forces the weight into position, pressing the trigger against the flanges and jamb of the door, this action releasing the weight which operates the mechanism. The bolts are thrown back by the same principle, except that the trigger is operated by the time lock. One special feature of the weight-bolt thrower is that it is not necessary for all of the bolts to be thrown entirely out in order that they may retract, as the weight will operate the bolts by throwing back from any position. That is, if dust, paper or any other substance gets into a bolt-hole, and prevents that bolt from entering all the way, the time lock will open the door at the fixed hour. As a rule it is necessary that all the bolts be thrown full in order to engage the time lock trigger, and if this is not done, as happened some time ago in Boston, the doors must be blown open. The improvement is a highly advantageous one, since it does not affect the safety of the vault, and at the same time insures its prompt opening.

The American Cotton Picker Co., of Pittsburg, Pa., shows in the Transportation Building one of its cotton-picking machines, and in a field in the rear of the Transportation Building the machine in operation. So many attempts have been made to construct a successful mechanical cotton picker, and always have failed, that anyone examining a machine for this purpose cannot but look upon it with skeptical eyes and doubt its ability to perform the work satisfactorily. The principle on which this machine works is quite simple. It consists of two elongated boxes, twenty-six inches in height, twenty inches wide and four feet long. These are placed six inches apart, one on each side of the machine. The power comes through gearing on the axles of the rear wheels and is transmitted to the interior of the boxes. Within the boxes there is, first, an oblong plate, with gear teeth cut on one side. Engaging these there are a number of small cogwheels, which are attached to rods passing down into the boxes. On these rods are smaller steel rods about three-sixteenths of an inch in diameter and eight inches long, setting at right angles. These are corrugated and revolve. In action, when the machine is moving, the cotton stalk goes between the two boxes. The small steel rods move along on the inside of the machine, consequently on each side of the stalk of cotton. They revolve, and as they are thrust into the boll of cotton, wind the fibre from it and then pass into the boxes, where the

fibre is drawn off and through suitable means forced into the bag. The tests with the machine show that it is perfectly practicable to pick cotton, but the difficulty experienced is that the machine lacks human judgment and will pick half-ripe cotton as readily as it does the fully ripe. An effort is being made to overcome this, but it is difficult to see how this can be done. From a purely mechanical point of view the machine is very ingeniously and simply constructed; but while it acts on any opened boll without regard to whether it is full or only partly ripe, it cannot be regarded as a success.

The Buffalo Scale Co., of Buffalo, N. Y., shows in the Manufactures and Liberal Arts Building a large variety of the scales manufactured by it. The exhibit is well arranged, the large scales for heavy weights being along the outside of the booth, while in the centre is a large case containing smaller and finer scales, all of them highly finished. Among those shown are scales for weighing cotton, beams for platform scales, heavy truck scales, suspended scales and the beam of a railroad scale.

The E. D. Albro Co., of Cincinnati, Ohio, which is one of the largest importers of mahogany and other foreign cabinet woods in this country, has a very beautiful display in the Manufactures and Liberal Arts Building, showing a large variety of foreign cabinet and veneer woods, both plain and finished. The greater part of these woods are those used for veneers. Among them is the well-known iron wood of South America, teak wood, olive wood and many other species. The exhibit is one of great interest, which is added to by its excellent arrangement.

The Boston Belting Co., of Boston, has in the Fire Building an extensive display of its fire hose, showing the various sizes of its cotton and rubber hose, both the plain and the rubber lined. The company also shows several varieties of the couplings of the nozzles. The columns consist of one of the Excelsior-jacket two and one-half-inch hose, containing a number of coils of fifty feet each; another of the same size American Underwriters' hose, another of Phoenix Mill hose, another of Jacket fire hose and another of Imperial jacket hose. The exhibit is attracting much attention from persons interested in fire apparatus. In addition to this display in the Fire Building, the company has in the Manufactures and Liberal Arts Building an extensive exhibit of various styles of its rubber goods, including seamless stitched rubber belting, several sizes of hose, its spiral piston packing, rubber-covered truck wheels and a number of other rubber goods.

The Simonds Manufacturing Co., of Fitchburg, Mass., has in the Machinery Hall an excellent display of its various styles of saws. The exhibit consists of two large panel cases, one containing various sizes of circular saws, including one with the company's patent inserted tooth. This point is well known to users of saws, as it is easy to insert and remove, and yet it remains firmly secured in the saw. The point can be swaged in the plate, will stand a good feed and yet give plenty of clearance for sawdust. The other panel contains the company's "Crescent" crosscut saws and also mulay and gang saws. In the centre, between the two cases, is a pyramid made of different sizes of hand saws. In a case in front of the exhibit is shown a nine-foot veneer knife, various sizes of planer knives, hoop knives, stove knives, straight and spiral-gage lathe knives and others for various kinds of woodwork. Besides these, the

company shows some of its smaller tools used in connection with woodworking machinery.

One of the handsomest exhibits of artistic ironwork on the grounds is shown in the Manufactures and Liberal Arts Building by the Sneed & Co. Iron Works, of Louisville, Ky. The designs here shown are both of the ornamental iron grill work and of cast-iron work, bronzed and plain. One part of the exhibit shows a magnificent cast-iron vase, bronzed, the delicate work showing unusual skill in handling the material. There are also shown two handsomely-decorated cast-iron newell posts and between them a mythological head of a satyr, iron book racks, panels, stair railings, posts and a number of other forms of work. The cast work here is particularly fine, some of it fully equalling the best wrought work and looking so much like the latter as to readily deceive one.

The Instantaneous Water-Heating Co., of Chicago, Ill., has in the Manufactures and Liberal Arts Building some of its instantaneous water heaters, showing its No. 5, No. 9B and other sizes. These water heaters are extremely useful in all houses, and indeed in offices also, as in a very few moments hot water can be obtained either in small or large quantities. The construction is simple. The outside shell is cone shaped, and inside are two cylinders, one inside the other, of the same shape. Below these is the circular gas burner, while above them the water is sprayed down over their surface, absorbing the heat rising from the burner. The heaters are made for use with both gas and gasoline and in all sizes.

The Globe Co., of Cincinnati, Ohio, shows in the Manufactures and Liberal Arts Building a full display of its desks and office furniture, including a complete bank counter, with marble at the base and on the desk at the windows, wooden panels and ground glass at the sides and arched-iron grill work on the top. Among the office desks is one showing pigeon holes and a series of small square drawers, which are provided with a handle in which can be placed a card designating their contents. There are shown also several book racks, revolving office book cases, cabinet letter files, flat-top desks and other office fixtures. The finish on this work is excellent and the designs both artistic and convenient.

The Newport News Shipbuilding and Dry Dock Co., of Newport News, Va., has in the Transportation Building a large-sized model of its works, one of the largest and best equipped in this country. Around the outside of the exhibit there is a railing, consisting of brass anchors, through which pass two ropes forming a hand rail. On one side is a large detail model of the steamer El Sud built by the company, and on the other a model of one of the steel steamers built by it for the Plant Investment Co. In the rear are photographs of the different parts of its works. The model received a gold medal, one which it well deserves for its completeness.

The G. & H. Barnett Co., of Philadelphia, Pa., the widely-known manufacturers of "Black Diamond" files, show in the Manufactures and Liberal Arts Building a handsome case in which are arranged files of the many sizes and styles manufactured by the company. These include every line, from fine toilet files, files for jewelers and dental work, for woodwork and machinists, up to a large file four feet in length.

H. S. FLEMING, M. E.

Agriculture, Land and Mineral Wealth Combined.

Through the courtesy of Mr. Geo. H. Clark, whose personal efforts have been most largely instrumental in collecting and arranging the very fine exhibit from Polk county, in the Georgia State Building, the following description of the display and of its relation to the resources of the county and State has been prepared. Mr. Clark deserves the highest praise both for the completeness of his exhibit and its excellent and instructive arrangement:

"Among the most important of the many object-lessons which the Cotton States and International Exposition, now in its closing days, has brought so forcibly before the crowds of Northern, Eastern and Western visitors who are seeking new homes in the South in order to escape the hard climate and less favorable conditions under which they have been unwillingly living is the fact that every purchaser of a farm in Northern Georgia gets with it a strong probability that under the soil he is going to cultivate there are likely to be minerals of sufficient value to pay back to him, as soon as they are developed and offered for sale, the cost of his home. Cases of this kind in many parts of North Georgia are the rule rather than the exception. This fact has great weight with an intelligent home-seeker in the South as soon as he finds that little or no added price is placed on the land, because of the fact that in it he may be buying for his children deposits of gold or silver or iron or manganese or aluminum ore which may eventually make them independent. In no other State in the Union have the mineral and the agricultural resources been combined as they are in Northern Georgia. In no other section of our great country is diversity and wealth of mineral resources provided with a climate second to none in point of health and a soil capable of raising almost anything from the widest range of fruit to the greatest diversity of field and forage crops. In this connection, and as an illustration of the working out of this idea, the exhibit made by Polk county, Georgia, in the Georgia State Building, is worthy of special mention. It is a small exhibit, made with trifling means and in a very limited time, yet the jury of award have honored it with a silver medal and diploma of excellence for "great variety of mineral resources," another for "variety of agricultural resources," and three additional medals and diplomas for special exhibits. The leading industry of the county being iron mining, the exhibit is enclosed in a fence made partly of pig iron and partly of the brown hematite ore from which the iron was made. The coke iron comes from the Cherokee Furnace, belonging to the Cherokee Iron Co. at Cedartown, Ga., and the charcoal iron from Etna Furnace. The superior quality of the foundry grades of the Cherokee iron have become well known throughout a very extended market during the twenty years it has been manufactured at Cedartown, and the grain of the fractured pigs shown here, together with samples of bars, chilled wheel flanges, etc., show that it is still maintained at its high standard. Forming the inside of the fence, all around the exhibit, is a systematic arrangement of the iron ores of the county, each ore representing a mine now raising and shipping ore, bearing a complete analysis, etc. Cedartown mines and ships more iron ore daily than any other point in the South except Birmingham, so that this miniature assemblage of ores represents the daily work of more than a dozen large mining companies, operating fourteen washers, with an investment of over \$350,000 in the business of raising and preparing ore for an extended mar-

ket, including deliveries as far north as Bristol, Tenn., and as far south as Birmingham, Ala. Most of this ore is brown hematite gravel ore, varying in value according to the thoroughness of its cleaning or preparation for the furnace, and the price paid for it varies from 85 cents to \$1.40 per ton f. o. b. cars at mine. The analysis of the ore varies in iron from 45 to 56 per cent., in silica from 6 to 12 per cent., and in phosphorus from 0.02 to 0.8 of one per cent. Deposits of specular, magnetic and red hematite ore are also shown by samples to exist in the county, although they have been but very little worked as yet. The occurrence of these iron ores through the county is said to be very general, no portion of it being without some surface float or indication. Next in importance to the iron-ore industry in point of present development are the slate quarries, as evidenced by a most thorough and systematic exhibit of slate in all its crude and manufactured forms made by the Georgia Slate Co., of Rockmart, Ga., and others. Good workable deposits of fine slate are shown by exhibits from one locality and another to extend clear through the county. The exhibit made by the Georgia Slate Co. is most thorough, showing rough blocks, split blocks, roofing tile, electric switchboards, turned blocks, school slates, etc. An exposed roofing tile, which has been on a roof since the year 1856, shows its wearing quality. Although the Rockmart slate has been worked for more than forty years, it is only within a few years that any attempt has been made to properly equip and quarry the slate, owing to a lack of experience and capital on the part of the owners. Judging by the large photographs shown of the quarry, this defect in the hands of the Georgia Slate Co. bids fair to be speedily overcome. As already noted some months ago in the Manufacturers' Record, Polk county slate, in competitive tests made at Columbia College, New York, recently, had a resistance of 12,842 megohms, or 9,712,000,000 ohms greater than the Vermont slate, showing its superiority to any other slate in the United States for electrical purposes.

"Next to the slate is found an exhibit of Caen-stone, which is an accompanying formation with the slate, overlying it. The exhibit is a most interesting one, consisting of rough blocks and masses of the stone, carved and ornamented cubes, posts, vases, etc., all showing the extreme softness of the stone when first quarried and its adaptability (like the French Caen-stone) for making into all sorts of ornamental shapes, which become hard on exposure to the air. When first quarried it cuts readily with a knife and works beautifully in a slow or even a quick-motion lathe. With reference to its resistance to weight, the corner-stone of the Piedmont Institute at Rockmart is made of it and has never shown any evidence of injury by the great weight resting upon it. As a brick and terra-cotta material, its uses are very well proved by some beautiful specimens of pressed and some of common brick, the percentage of iron in the stone giving it, after burning, a bright cherry-red color. It would seem as if the attention of practical users of this material or of its products could hardly fail to be drawn by this exhibit to an examination of the deposit, which is extensive and has as yet received but little development. In the recent bringing into prominence of the Georgia beauxite field, Polk county's deposits have as yet been overlooked, but judging by the high class beauxite ore shown in the Polk's exhibit this condition of things can hardly remain longer the case. We find a ton of very fine-looking beauxite ore bearing an analysis of 60 per cent. alumina and below 4 per cent. in silica, with but a trace

of iron or other deleterious substances. Over 15,000 tons of beauxite from this district have already found a market in Philadelphia, New York, Syracuse, etc., and beauxite mining by two large companies is now being extensively carried on.

"Looking through the cabinets containing the minerals to which the county invites the attention of practical users of them, we find manganese of various grades, pyrolusite, psilomelam, braunite, manganite, wad and various manganiferous iron ores, baryta, limestone, marble, whetstones, graphite, red and yellow ochre and sienna, fire-clay, kaolin, galena, free milling and sulphuret gold ores, etc.

"Specimens of fine crystalline pyrolusite and of high-grade psilomelam show an interesting manganese field. The marbles of Rockmart are of the fine-grained variety, very similar to onyx both as to colors and appearance. They have received as yet no development. Fire-brick are shown which have stood a test of 4000° temperature, made from material found in the county; also a handsome decanter made at Trenton, N. J., from the finer grade of kaolin. About a ton of sulphuret gold ore represents a carload recently smelted in New Jersey, which yielded \$78 per ton, taking quartz and all. This ore comes from the Singleton mine.

"One of the most interesting of the cabinets is from the Singleton pyrites mine, and consists of iron pyrites, manganese and a very fine magnetic iron ore carrying nearly 70 per cent. of iron and about .02 of one per cent. phosphorus. The iron pyrites is the central material, the others being chance developments. It is an almost pure pyrite of iron, carrying 52 per cent. of sulphur, with no deleterious substances in the shape of copper, arsenic or zinc. The vein is said to be of definite formation, lying between well defined walls, about five feet in width and well developed by shafts and cuts. A company is being formed to work it and put it on the market. The general geology and mineralogy of the county and of the State is also well shown in the private cabinet belonging to the commissioner, Mr. George Huntington Clark, M. Am. Inst. of M. E., Cedartown, Ga., by whom the exhibit has been assembled and installed. Besides the mineral exhibit there is also shown a full and complete agricultural exhibit, showing all the field and forage crops, fruits, etc., an exhibit considered complete enough in itself to merit a special award of a silver medal and diploma of excellence. In the corner stands a hollow stump filled with live coons, possums, quail, fox squirrels, grey squirrels, etc., which has proved a very drawing card to the exhibit.

"It would seem as if a Western farmer, who is seeking a new home, would do well to consider the claims of a county where all these things lie under the ground which he cultivates, and yet where he can buy good farm land, mineral interest and all, at low rates; a county where the climate is of the best, schools abundant and good, soil capable of producing almost any kind of crops and fruit in abundance; and if he be one of the men who still cherishes the absurd idea that a Northern man is not wanted in Southern communities, he finds over the door of the Polk county exhibit two embroidered banners bearing the words: "Cedartown, Georgia, welcomes Northern settlers," and these banners represent the right hand of fellowship from Polk county people to all good citizens who are looking for Southern homes. By special request of Mr. Gustavo Niederlein this exhibit is to be placed on permanent exhibit with the Philadelphia Commercial and Economic Museum, where it will be added to from time to time and made a most systematic and striking exhibit of the resources of the South."